Fight (Round no.): Z Room: 1 Stage: 3 Problem no.: 1

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

	E Austria	4 stractore
Rep.: Germony 5	Opp.:	Rev.: 5
Stra Hartung 3	Mortus Viese	Withmann Goh
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of guestions to both the
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties go
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03



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Sco	ring	(21110)	lelines
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Fight (Ro	und no.):	2	Room:	1.	Stage:	3	Problem no.: 11
Juran:	Nirut		9	Signat	ure: 1	Ÿ	

a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena.
 application of appropriate mathematics.
 reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate).
 linking of theoretical and experimental findings to draw suitable conclusions.
 an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important ospects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.:AT5	Rev.: 56 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties &
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Jaher IOC feedback and approved by EC on 2011-11-49



huror: Hung-Chih Kan signature: DUED U

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

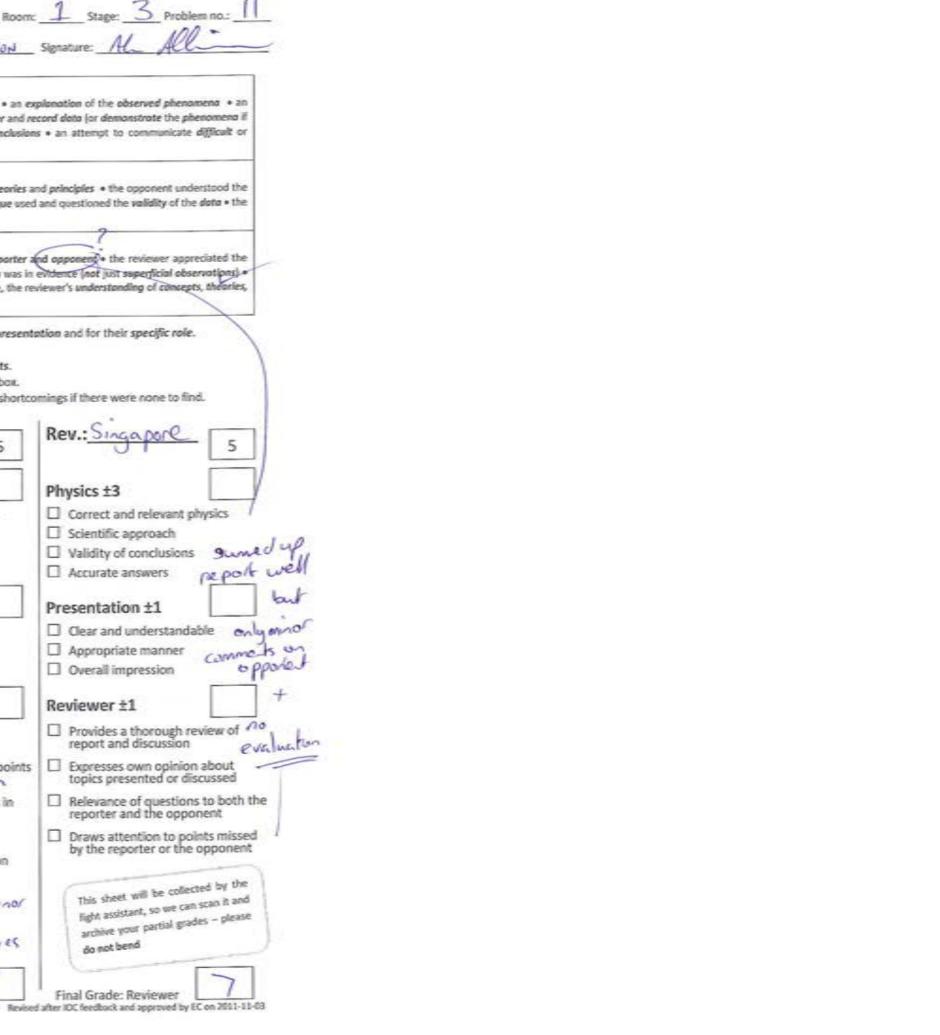
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal apinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.:	Rev.: 39 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	Scientific approach
✓ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
☐ Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial branch
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer 5



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Scoring Guideli	nes Juror: ALAN ALLINSON	1 Stage: 3 Problem no.: 11 Signature: AL All	
application of appropriate mathematics * appropriate) * linking of theoretical and	epts, theories and principles of the problem * an ex- reasonable experimental technique to gother and re- experimental findings to draw suitable conclusion	planation of the observed phenomena + an cord data (or demonstrate the phenomena if	
complex ideas in an effective and understa An opposition should show that • the opponent challenged the reporter's	t: understanding of the presented concepts, theories a	nd principles + the opponent understood the	
opponent appreciated and highlighted the	opponent critiqued the experimental technique used strengths and weaknesses of the report	and questioned the valuety of the same + the	
Important aspects (especially the controve	ective summary of the performances the reporter a ersiol ones) • the reviewer's personal opinion was in non-trivial and demonstrated, where possible, the re- sed by the reporter and the opponent	evidence (not just superficial observations) *	
The reporter, opponent and reviewe Consider the following suggestions to Select each partial grade from each :	ns consists of a partial grade for physics, presents or each start with 5 points. To add to or deduct from the initial 5 points. Section and write it in the corresponding box. In no questions were posed or not finding shortco		
Rep.: German 5	Opp.: Austria 5	Rev.: Singapore 5	
Physics ±3	Physics ±3	Physics ±3	
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
Scientific approach CK	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions →	☐ Validity of conclusions	☐ Validity of conclusions 9cme (
Accurate answers	☐ Accurate answers	□ Accurate answers pepoA u	
resentation ±1	Presentation ±1	Presentation ±1	
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable only a	
Appropriate manner	☐ Appropriate manner	□ Appropriate manner Commo_Is □ Overall impression 6 PP	
Overall impression	☐ Overall impression	Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of no report and discussion	
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent	
Appropriate models, conformity of dimensions		Draws attention to points missed by the reporter or the opponent	
 Slides, on-site experiments, aud video, as appropriate 	io, Contribution to the discussion		
References, proper citations of ideas and input of others	discussion contrad on mor	This sheet will be collected by the fight assistant, so we can scan it and metric grades - please	
☐ Novelty of the report	parte	archive your parour o	
Contribution to the discussion	not electrical proporties	do not bend	
payed de	Alapsal of inpulse 5		
Final Grade: Reporter	Final Seade: Opponent	Final Grade: Reviewer	



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Scoring Guidelines

Fight (Round no.): 2 Room: Stage: 3 Problem no.: 11

Juror: MONSIT Signature: M. Tauchtul

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Germy 5	Opp.: Aush	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Cleap and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 1
Quality of experimental technique(s) yo	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your passas or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 4	Final Grade: Opponent 6.	Final Grade: Reviewer 7



Fight (Round no.): 2 Room: 1 Stage: 3 Problem no.: 11

Juror: L. Glawleruk Signature: d. Curackens

A report should include:

 a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

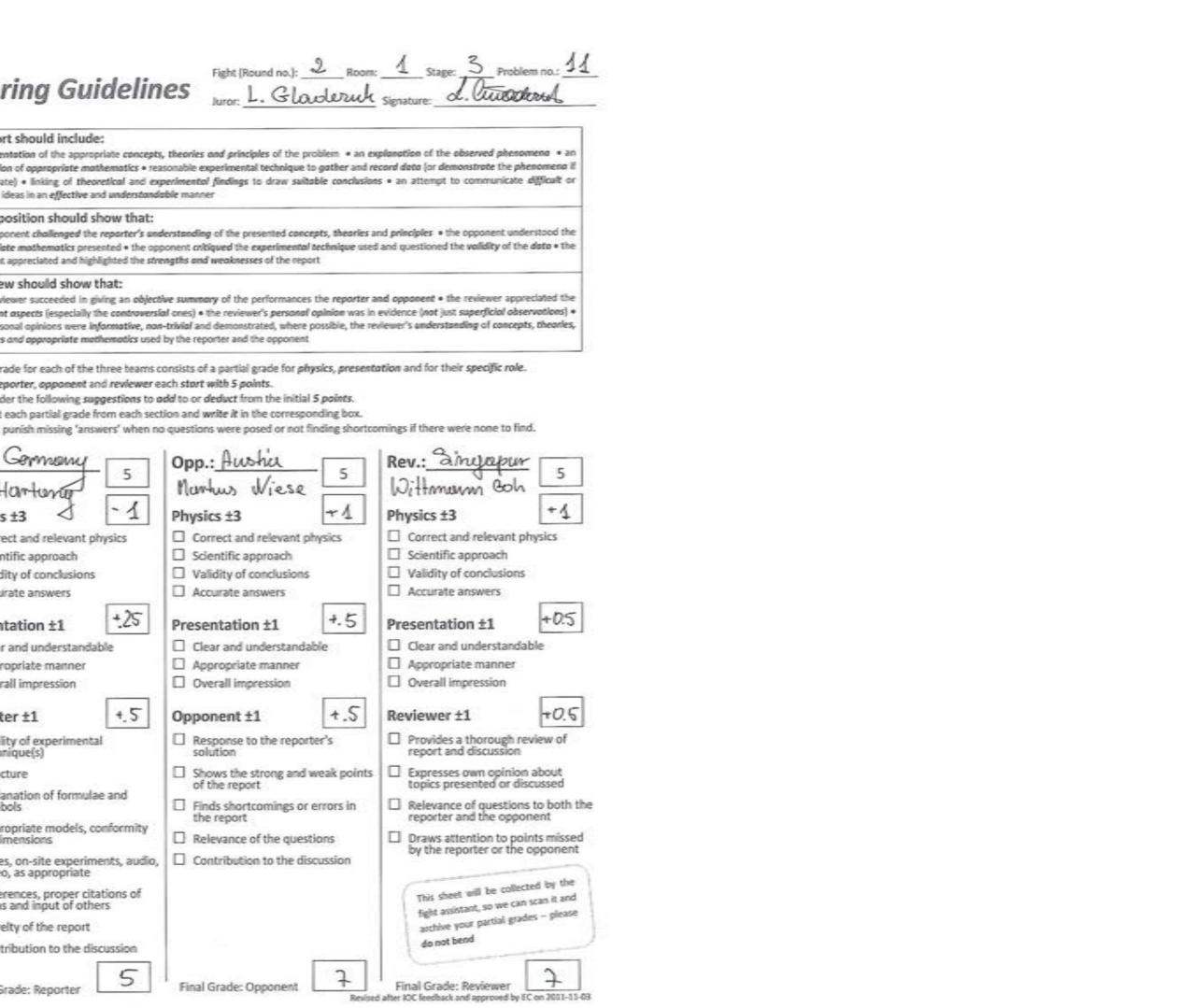
. the apparent challenged the reporter's understanding of the presented concepts, theories and principles. The apparent understood the appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the opponent appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

. the reviewer succeeded in giving an objective summary of the performances the reporter and opponent . the reviewer appreciated the important aspects (especially the controversial ones) + the reviewer's personal opinion was in evidence (not just superficial observations) + such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mothematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- . Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Sima Hartura 5	Opp.: Husha 5	Willmann Coh
Physics ±3	Physics ±3	Physics ±3 +4
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +.25	Presentation ±1 +.5	Presentation ±1 +0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
□ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 +.5	Opponent ±1 +.5	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		authine your parusi si-
☐ Contribution to the discussion	35 70	do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer



Fight (Round no.): 2 Room: Stage: 2 Problem no.: #12

Juror! Hung - Chih Karsignature: 10-10

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 59 5	Opp.: 45 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☑ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	☑ Clear and understandable
Appropriate manner	☑ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1 /	Reviewer ±1 /
Quality of experimental technique(s)	M Response to the reporter's solution	Provides a thorough review of report and discussion
☑r Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 		Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so use can scan it and fight assistant, so use can scan it and
☐ Novelty of the report		archive your parties &
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer dater IOC feedback and approved by EC on 2011-11-03



Fight (Ro	und no.):	Ž	Room: 1	Stag	2	Problem no.:	2
	Nirst		Sign	ature:	W		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.:	Opp.:	Rev.: AT 5		
Physics ±3	Physics ±3	Physics ±3		
☐ *Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ «Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and grades - glease		
☐ Novelty of the report		arthive your parties go		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5 d after IOC feedback and approved by EC on 2011-11-03		



Scoring Guidelines A report should include: a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gather and record data for demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner An opposition should show that: the opponent challenged the reporter's understanding of the presented concepts, theories and principles . the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report A review should show that: . the reviewer succeeded in giving an objective summary of the performances the reporter and opponent . the reviewer appreciated the Important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role. · The reporter, opponent and reviewer each stort with 5 points. . Consider the following suggestions to add to or deduct from the initial 5 points. · Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. Rep .: SING Physics ±3 Physics ±3 Physics ±3 □ Correct and relevant physics □ Correct and relevant physics Correct and relevant physics Nice hat ☐ Scientific approach ☐ Scientific approach / ☐ Scientific approach ☐ Validity of conclusions ■ Validity of conclusions □ Validity of conclusions Accurate answers Accurate answers Accurate answers Presentation ±1 Presentation ±1 Presentation ±1 2 ☐ Clear and understandable ☐ Clear and understandable ☐ Clear and understandable 900 d Appropriate manner FAS □ Appropriate manner Appropriate manner Overall impression ☐ Overall impression Overall impression The muchial Reporter ±1 Opponent ±1 Reviewer ±1 Quality of experimental technique(s) / plantal Provides a thorough review of Response to the reporter's report and discussion solution as corrected Expresses own opinion about ☐ Structure ☐ Shows the strong and weak points topics presented or discussed partial of the report Explanation of formulae and Relevance of questions to both the symbols to fast ☐ Finds shortcomings or errors in reporter and the opponent the report Appropriate models, conformity □ Relevance of the questions □ Draws attention to points missed // of dimensions

☐ Contribution to the discussion

Final Grade: Opponent

Slides, on-site experiments, audio, video, as appropriate ·

References proper citations of ideas and input of others

Contribution to the discussion

■ Novelty of the report

Final Grade: Reporter

less is mure

by the reporter or the opponent

This sheet will be collected by the

fight assistant, so we can scan it and archive your partial grades - please

do not bend

Final Grade: Reviewer

Revised after IOC feedback and approved by EC on 2011-11-03

ight (Round no.):	2	Room:	1	Stage:	2	Problem no.:	12
L. Gra	der	ule	Sienati	HP ()	2.0	wedow	0

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Simpopur 5	Opp.: Germany 5	Rev.: Austria 5	
Willowen Goh	corrina Kanutz	Number Viere 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1 0.25	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	☐ Overall impression	Overall impression	
Reporter ±1 0.75	Opponent ±1 0.5	Reviewer ±1 0.5	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed	
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	☐ Relevance of questions to both the	
☐ Appropriate models, conformity	the report	reporter and the opponent	
of dimensions	☐ Relevance of the questions	☐ Draws attention to points misse	
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		suchive your paron are	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03	



ight (Round no.):	Room: 1	Stage: 2	Problem no.:	12.
- MONSIT	Cine		the .	

A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: SG 5	Opp.: A German 5	Rev.: AT. 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1 0.5	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	Overall impression	☐ Overall impression	
Reporter ±1 6.5	Opponent ±1	Reviewer±1 ○-ఎऽ	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed	
☐ Explanation of formulae and	of the report		
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent	
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial gradient	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6.	



Fight (Round no.): 2 Room: 1 Stage: 2 Problem no.: 17

Nor: Audices Wishin Signature: Warmen

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

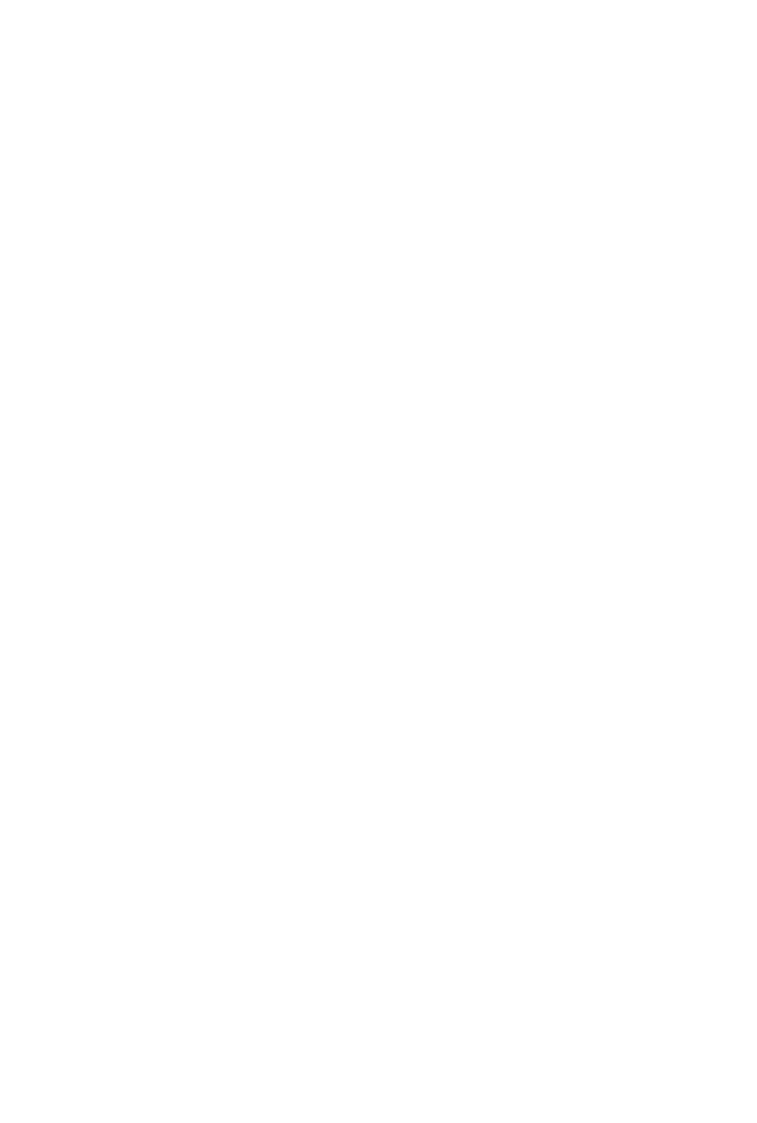
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate mathematics presented * the opponent understood the
appropriate mathematics presented * the opponent understood the
appropriate mathematics presented * the opponent understood the experimental technique
appropriate mathematics presented * the opponent understood the opponent underst

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

	1 A Greenous	In A
Rep.: singofrone	Opp.: Hostere 5	Rev.: Austria
Withmoun ash	Corine konita	Marking Niese
Physics ±3 +7	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 +0,5	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1 +q5	Reviewer ±1
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in	Relevance of questions to both th
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
☐ References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and
☐ Novelty of the report		archive your partial great
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IDC feedback and approved by EC on 2011-11-0



Fight (Round no.): 2 Room: 1 Stage: 1 Problem no.: 4

Juror: Audres Wishin Signature: Reviewed

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Austra 5	Opp.: Shyakore 5	Rev.: hermany 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1 -1	Presentation ±1 + 0,5	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	☐ Overall impression	☐ Overall impression	
Reporter ±1	Opponent ±1 -0,5	Reviewer ±1 +1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about	
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the	
☐ Appropriate models, conformity	the report	reporter and the opponent	
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial grade	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03	



Fight (Round no.): 2 Room: 1 Stage: 1 Problem no.: #4

Juror: Hung-Chih Kan Signature: 1886.

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demandstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important ospects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and oppropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 41 5	Opp.: 567 5	Rev.:_ 6E 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	☑ Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of guestions to both the
Appropriate models, conformity of dimensions	the report Relevance of the guestions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		anchive your parous pro-
☐ Contribution to the discussion	-	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6



Scoring	6-1116	olinos
JUILIII	UHIU	CHILLES

Fight (R	ound no.):	2	Room:	1	Stage: 1	Problem no.:	4
Juror:	Nirut		Si	enatur	e A	7	

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demanstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the apparent challenged the reporter's understanding of the presented concepts, theories and principles * the apparent understood the
appropriate mathematics presented * the apparent critiqued the experimental technique used and questioned the validity of the data * the
apparent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.:_ fustria 5	Opp.: Singapore 5	Rev.: 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics ✓	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	✓ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	☐ Overall impression	☐ Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent	
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		arthore your parties a	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Lafter IDC feedback and approved by EC on 2011-11-03	



Fight (Round no.):	200	mc 1_ st	1	Problem no :	4
luror: A ALL				Al	-

A report should include:

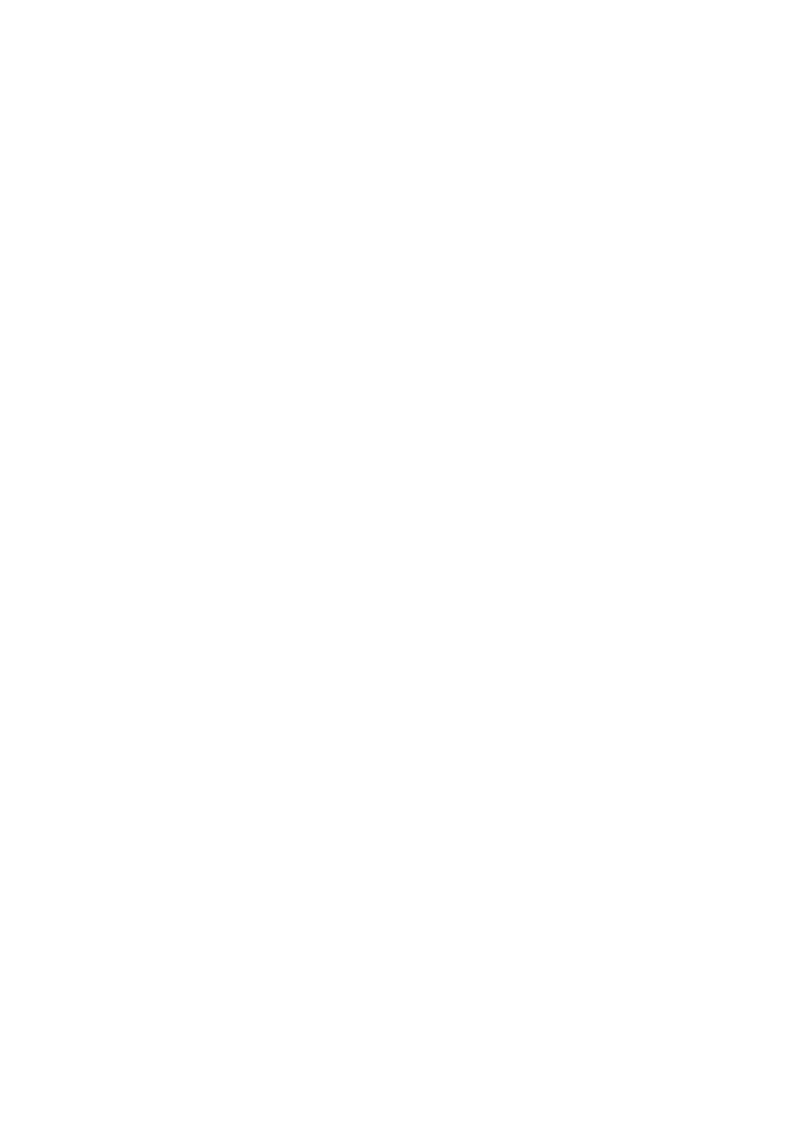
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects [especially the controversial ones] * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.:5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach white brut	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions ∧₩	☐ Validity of conclusions	☐ Validity of conclusions
☐ Validity of conclusions AN ☐ Accurate answers Callect	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable /	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		anchive your parties o
☐ Contribution to the discussion		do not bend
ichness, I,	7	7
Final Grade: Reporter 6	Final Grade: Opponent	Final Grade: Reviewer



ight (Round no.): 2 Room: 1 Stage: 1 Problem no.: 4

Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw switoble conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

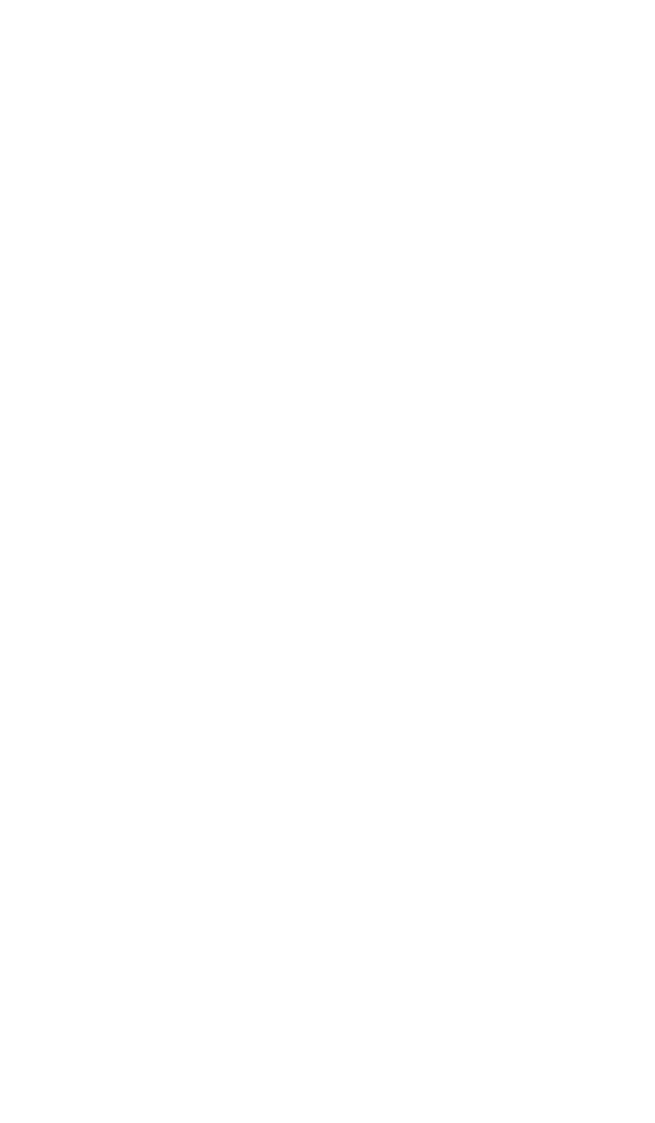
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Austria	Opp.: Simustant	Rev.: Germony
Luisa Schrempt 5	5	5
Physics ±3 0.5	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 0.5	Presentation ±1 0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 0.5	Opponent ±1 0.5	Reviewer ±1 0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the guestions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grades
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Fight (Roun	dno.): 2 R	oom: 1	Stage:	Problem no.: 4	
	IONSIT	Signature	п.	Tathl.	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the absenced phenomena * an appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apparent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Austria 5	Opp.: Singapore 5	Rev.: German 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions №	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers >>	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1 0.35		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent Draws attention to points missed		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions			
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the apponent		
References, proper citations of ideas and input of others (NO (CA)) Novelty of the report		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Jahr IDC feedback and approved by EC on 2011-11-8		



Round: Room: Fight Assistants: Mr. Vonsum Repausy Mr. Thanundon kongrok

	Ĩ	Stage 1		Stage 2 Stage 3				Stage 4				
Team	Austria	Singetone	_	Singapore	Germany	Austria	Germony	Austria	Singapore			
Juror	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev
Alma Allinson (chair)	6	7	4	4	4	6	4	5	ч			
Mensit TavasittiYosol	8	q	ז	7	6	6	4	6	4			
Lestek Gladetuk	7	٦	e	7	7	6	5	7	4			
Wived Physadee	6	8	1	6	6	5	5	6	Ч			
Hung-Chih kan	5	Α -	6	7	6	6	5	5	5) -		
Andrei Klishim	А	Δ	7	7	g	7	5	5	8			
Acting Team Member	tomempt schrempt	Kox Jim Ming	No minited Stenget	Wildmann Gos	Caxima Vanizz	Markus Niese	Sina Julia Hartony	Markue Mire	Will functions Gold			
Rejected Problems				n rolle	e (up							
Accepted Problem	4 liqu	id film Polo	b .	19 Trica	. Erec		n cals	Whisher				

Signature Fight Assistant:

... Double-checked with Scoring Guidelines by second Fight Assistant (signature): ງາມເຄາ ສ່ວງຊຸດຄຸ

Scoring	Guido	inos
JUUITIN	QUIUCI	HIES

Fight (Round no.):	2	Room:	2	Stage: _	Problem no.: 5
Juren Kathry	n Te	alord.	Signatu	re Ki	un

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mothematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important ospects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the apponent

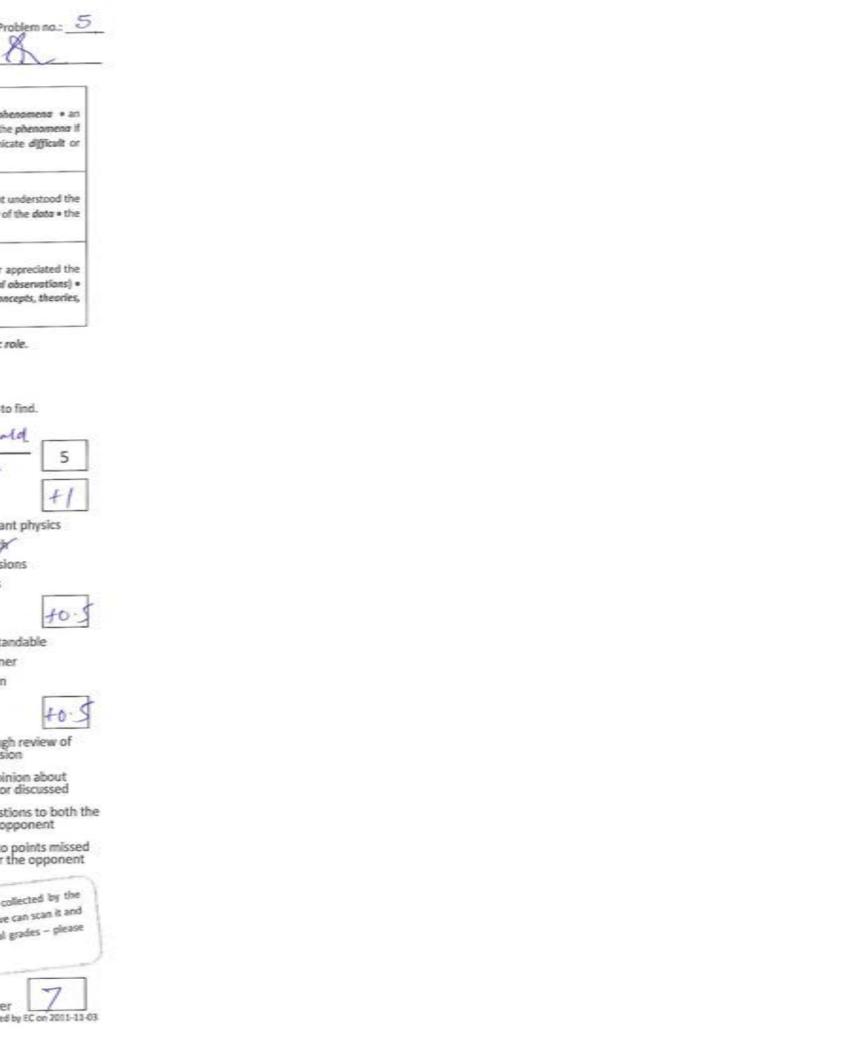
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Monthaphat 5	Opp.: Sohn 5	Rev.: Annal 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1 + 1/2	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1 +/2	Reviewer ±1 +		
Quality of experimental technique(s) e ₁ x o ² s	Response to the reporter's solution	Provides a thorough review of report and discussion		
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both th reporter and the opponent		
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	excellent questions		
References, proper citations of ideas and input of others		This sheet will be collected by the		
Novelty of the report		archive your parties go		
☐ Contribution to the discussion	C 5 B	do not bend		
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03		



Scoring Guidelines	Fight (Round no.): 2 Room; 2 Stage: 1 Problem no.: 5 Juror: Kerry Parker . Signature: Ker 8
application of appropriate mathematics + reasonable	es and principles of the problem * an explanation of the observed phenomena * an experimental technique to gather and record data (or demonstrate the phenomena if tal findings to draw suitable conclusions * an attempt to communicate difficult or one
	ling of the presented concepts, theories and principles • the opponent understood the critiqued the experimental technique used and questioned the validity of the data • the and weaknesses of the report
important aspects (especially the controversial ones)	many of the performances the reporter and apparent • the reviewer appreciated the • the reviewer's personal opinion was in evidence (not just superficial abservations) • and demonstrated, where possible, the reviewer's understanding of concepts, theories, eporter and the apparent
The grade for each of the three teams consists The reporter, opponent and reviewer each store Consider the following suggestions to add to o	r deduct from the initial 5 points.

 Don't punish missing 'answers' when no two nthaplat 	questions were posed or not finding shortco	
Rep.: Susuntithet 5	Opp.: Ludauski 5	Rev.: Anne wold 5
Thai	usa 🔄	
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 +0.5
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 -0-5	Opponent ±1	Reviewer ±1 +0.5
Quality of experimental X technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report.		archive your parour a
Contribution to the discussion		do not bend



Scoring	Guide	lines
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ight (Round no.):	Z_Room:	2	Stage:	/ Problem n	0.:_5
uror: QTAN	SUN	Signatu	re:((9	Son

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: TH 5	Opp.:_ USA 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parous pre-
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Salter IOC feedback and approved by EC on 2011-11-03



	2		9		-1		(
ght (Round no.):	4	Rooms	1	_ Stage		Problem no.		
me PEGN	ER		Signati	ire:	lux	200		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important ospects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: \ liailand 5	Opp.:	Rev.: Poland 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	☐ Overall impression	☐ Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1 +	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed	
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report		
 Appropriate models, conformity of dimensions 	Relevance of the questions		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		archive your parvar a	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer	



Fight (Round no.): 2	Room: 2	_Stage: _ 7	Problem no.: 5	
luror: DKeller	Signal	ture / M	Wille/	

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial abservations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Thailand 5	Opp.:_//SA5	Rev.: Poland 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics (②) Scientific approach ☐ Validity of conclusions ☐ Accurate answers Presentation ±1 (②) Clear and understandable	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers Presentation ±1 ☐ Clear and understandable	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers Presentation ±1 ☐ Clear and understandable ☐ Appropriate approach
☐ Appropriate manner (☑) Overall impression	☐ Appropriate manner ☐ Overall impression	☐ Appropriate manner ☐ Overall impression
Reporter ±1 // // //	Opponent ±1	Reviewer ±1
Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions	Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion by the reporter or the o	
☐ References, proper citations of ideas and input of others ☐ Novelty of the report ☐ Contribution to the discussion		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Scoring	Guidelines

Fight (Round no.): 2	_Room: Stage: Problem no.:	_
wor. Ton Juy	Signature: TO	_

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

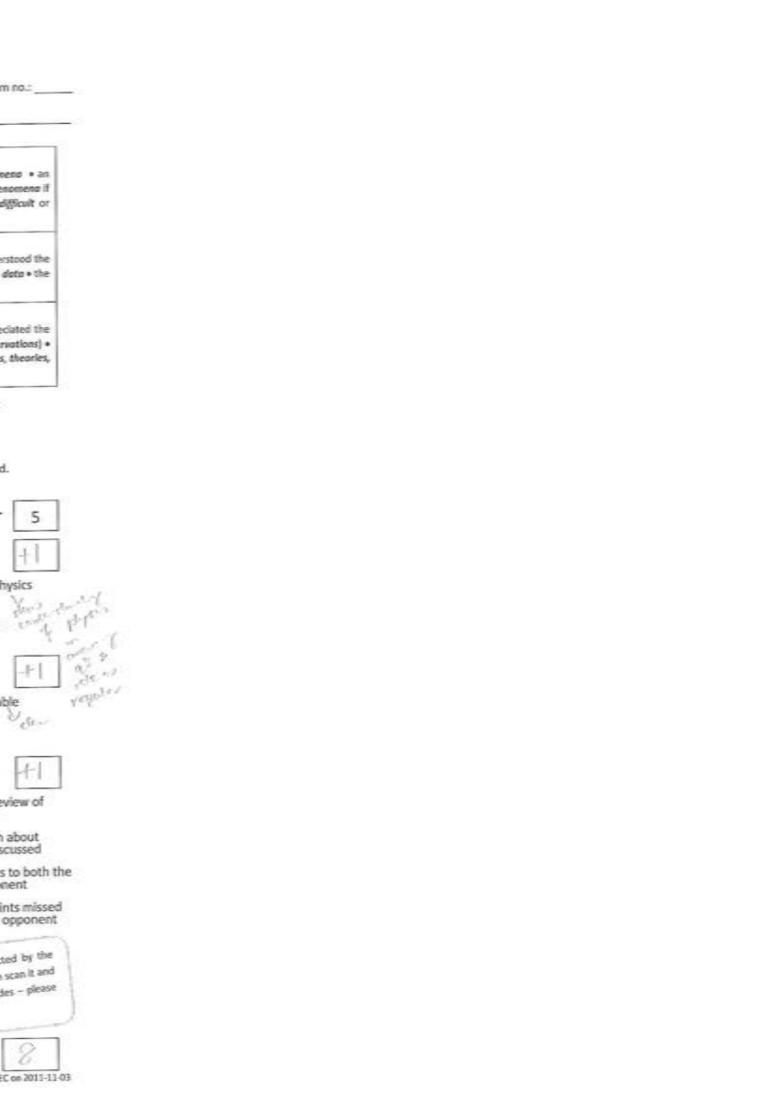
* the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Northaphat Sussentidhet 5	Opp.: The Lakovski 5	Rev.: Anna Odd
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific annmach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions y coll]	☐ Validity of conclusions
☐ Accurate answers → all class 1	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ 'Clear and understandable	(2) Clear and understandable
Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall inspression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure Cond to	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both th reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	*Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate—) (1997)	Contribution to the discussion	
References, proper citations of ideas and input of others	obstanting the solid	This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report	I rel controlled mery	archive your parties go
☐ Contribution to the discussion	25000	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer taber IOC feedback and approved by EC on 2011-11-0



ight (Round no.):	2	Room:	2	Stage:	Problem no.:	16
uror Katha						

A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed pheno application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the pl appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate complex ideas in an effective and understandable manner

An opposition should show that:

* the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent und appropriate mathematics presented + the apponent critiqued the experimental technique used and questioned the validity of th opponent appreciated and highlighted the strengths and weaknesses of the report

- . the reviewer succeeded in giving an objective summary of the performances the reporter and opponent . the reviewer app important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial obs such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepprinciples and appropriate mathematics used by the reporter and the apponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to fi

Rep.: Korl USA 5	Opp.: Radest 5	Rev.: Panisham 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
(Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
en leaste, no theoretical explatant	Presentation ±1	Presentation ±1
☑ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1 + 5	Reviewer ±1
technique(s) (wiled investigation	Shows the strong and weak points	report and discussion Land just sweet
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions Missing	the report Relevance of the questions	reporter and the opponent Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others	good july showing how he could have verifical	This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
Novelty of the report	Almonn	archive your parcer a
Contribution to the discussion	Could have talked more about	do not bend
Final Grade: Reporter 3	Rhal Grade: Opponent 6	Final Grade: Reviewer 3

30	Signature: KUNY
rec	olonotion of the observed phenomena * an cord data (or demonstrate the phenomena if a * an attempt to communicate difficult or
	d principles • the opponent understood the and questioned the validity of the data • the
in e	nd opponent • the reviewer appreciated the evidence (not just superficial observations) • liewer's understanding of concepts, theories,
nta	tion and for their specific role.
cor	nings if there were none to find.
	Rev.: Panitham 5
	Physics ±3
	☐ Correct and relevant physics
-	☐ Scientific approach
-1	☐ Validity of conclusions
	☐ Accurate answers
	Presentation ±1
1	☐ Clear and understandable
П	Appropriate manner
	Overall impression
	Reviewer ±1
	Provides a thorough review of report and discussion Library just something
s	Expresses own opinion about topics presented or discussed
	Relevance of questions to both the reporter and the opponent
	Draws attention to points missed by the reporter or the opponent
	and by the
- 1	This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
	fight assistant, so we wanted - please
	the wast partial glade.
	fight assistant, so we con- archive your partial grades - please do not bend

Scoring	GIIIdo	IMAG
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ight (Round no.):	2 Room	2 Stag	e: 2 Probli	em no.:
uror: Keny	Pask	Signature:	Kert	~_

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

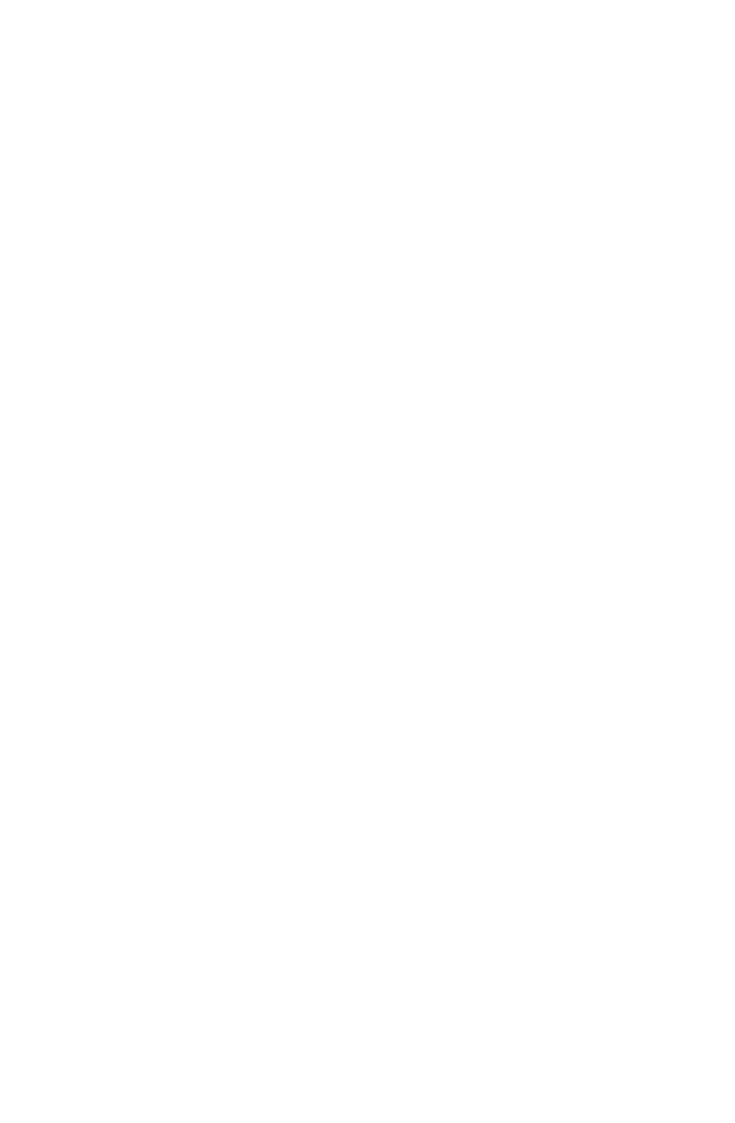
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Karl Sewick 5	Opp.: Radost	Rev.: Parithan Teensa wandtu 5
Physics ±3	Physics ±3 +	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 +/	Presentation ±1 -0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and		Relevance of questions to both the
symbols	Finds shortcomings or errors in the report	reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report V Sugar		arthire your parties grow
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer fafter ICC feedback and approved by EC on 2011-11-03



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ight (Round no.):	2_Room:	2	Stage:	2	Problem no.:	16
mor ETTAN						

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

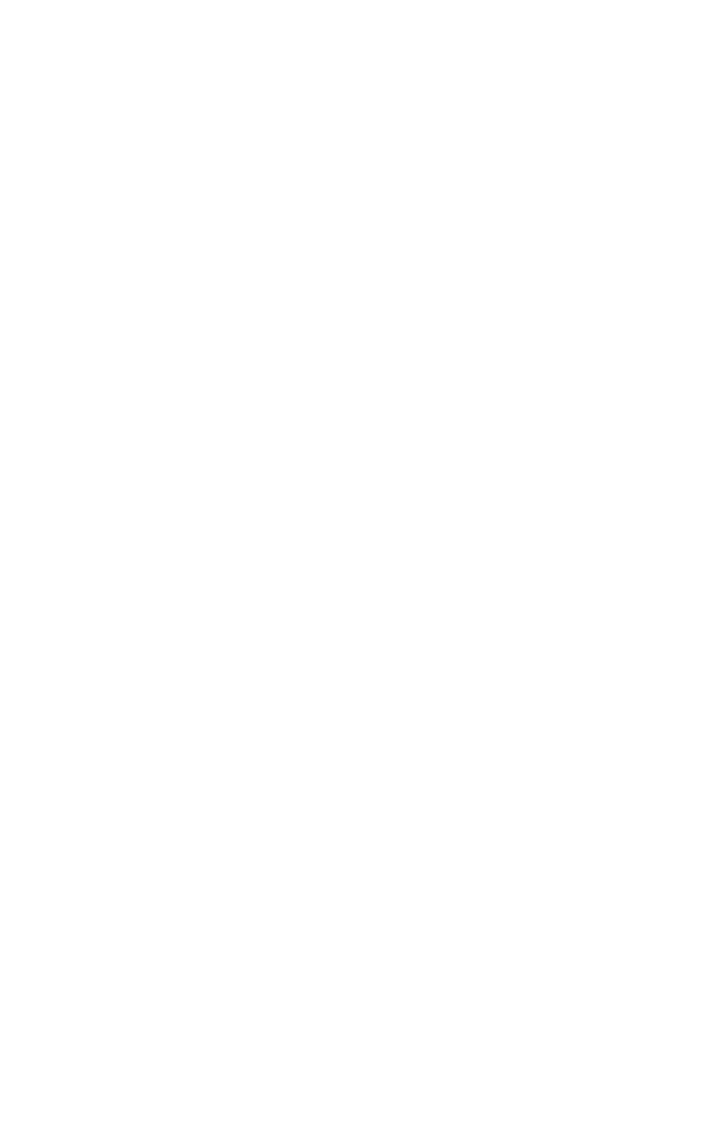
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: <u>USA</u> 5	Opp.:	Rev.: 1H 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1
Reporter ±1	Opponent ±1	Reviewer ±1 / Provides a thorough review of report and discussion
Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions	Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the guestions	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others Novelty of the report	☐ Contribution to the discussion	by the reporter or the opponent This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please
Contribution to the discussion Final Grade: Reporter	Final Grade: Opponent	do not bend Final Grade: Reviewer state 10C feedback and approved by EC on 2011-11-03



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ight (Round no.):		Rooma	6	Stage,	-	Problem	1.00	0
REG	UF	R	Cionata	-	ia	w		
uror:			Signati.	sre:	201	-		

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the apponent challenged the reporter's understanding of the presented concepts, theories and principles * the apponent understood the
appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: USA 5	Opp.: Poland 5	Rev.: The land 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1 +	Reviewer ±1 to,√
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions Slides, on-site experiments, audio, video, as appropriate	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report		archive your parties grades
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Gater IOC feedback and approved by EC on 2011-11-03



Fight (Ro	ound no.):	2	Room:	2	Stage:	2	Problem no.:	16
uror:	OK	elle		Signatu	re /		Willer	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mothematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.:	5	Rev.:	5
Physics ±3	Physics ±3	+1	Physics ±3	0
☐ Correct and relevant physics	☐ Correct and relevant phy	sics	☐ Correct and relevant phy	sics
(田) Scientific approach	☐ Scientific approach		☐ Scientific approach	
(B) Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers	
Presentation ±1	Presentation ±1	+1	Presentation ±1	0
☐ Clear and understandable	Clear and understandable	e	☐ Clear and understandabl	e
(E) Appropriate manner	☑ Appropriate manner		☐ Appropriate manner	
(B) Overall impression	Overall impression		☐ Overall impression	
Reporter ±1 0	Opponent ±1	+1	Reviewer ±1	c
Quality of experimental technique(s)	Response to the reporter solution	r's	Provides a thorough revi report and discussion	ew of
☐ Structure	☐ Shows the strong and we	eak points	Expresses own opinion a topics presented or disci	bout
 Explanation of formulae and symbols 	of the report Finds shortcomings or en	rors in	Relevance of questions to reporter and the opponer	o both the
☐ Appropriate models, conformity	the report			
of dimensions	Relevance of the questio		Draws attention to point by the reporter or the op	ponent
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discu	ission		-
References, proper citations of ideas and input of others			This sheet will be collected fight assistant, so we can so	an it and
☐ Novelty of the report			archive your parusi s	- person
☐ Contribution to the discussion			do not bend	
Final Grade: Reporter 5	Final Grade: Opponent	8 Revisado	Final Grade: Reviewer	5 m 2011-11-09



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ght (Round no.): _	2	Room:	2	Stage:	2	Problem no.:	16
ron Tour 3					60	7	

a presentation of the appropriate concepts, theories and principles of the problem.
 a presentation of appropriate mathematics.
 reasonable experimental technique to gother and record data (or demonstrate the phenomena appropriate).
 linking of theoretical and experimental findings to draw suitable conclusions.
 an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the apponent

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find

Rep.: (AS	Opp.: Rowles 5	Rev.: Touribred Poni-Houn 5
rusile Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Charge calculated		Accurate answers
Presentation ±1	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1	Opponent ±1 405	Reviewer ±1 $+0\bar{s}$
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure Explanation of formulae and symbols	Shows the strong and weak points of the report Finds shortcomings or errors in	Expresses own opinion about topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion	
 References, proper citations of ideas and input of others 	Able to comed worself	This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we rades - please
☐ Novelty of the report ☐ Contribution to the discussion	me doncery	fight assistant, so we can archive your partial grades - please do not bend
Final Grade: Reporter 6	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2001-11-08

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iderstood the he data + the
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oints missed educate opponent.
ected by the on scan it and odes - please
二十 EC on 2001-11-48

Fight (Round no.): 2 Room: 2 Stage: 3 Problem no.: 1

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explonation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

god use of conductor remaks

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Ann Poland 5	Opp.: Pian	Rev.: Brian 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☑ Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1 +12	Reviewer ±1 0
Quality of experimental technique(s) n.a. (ada) of dare	Response to the reporter's solution	Provides a thorough review of report and discussion L+ a Summer
Structure Ger	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Fight (Round no.): 2 Room: 2 Stage: 3 Problem no.: 1

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

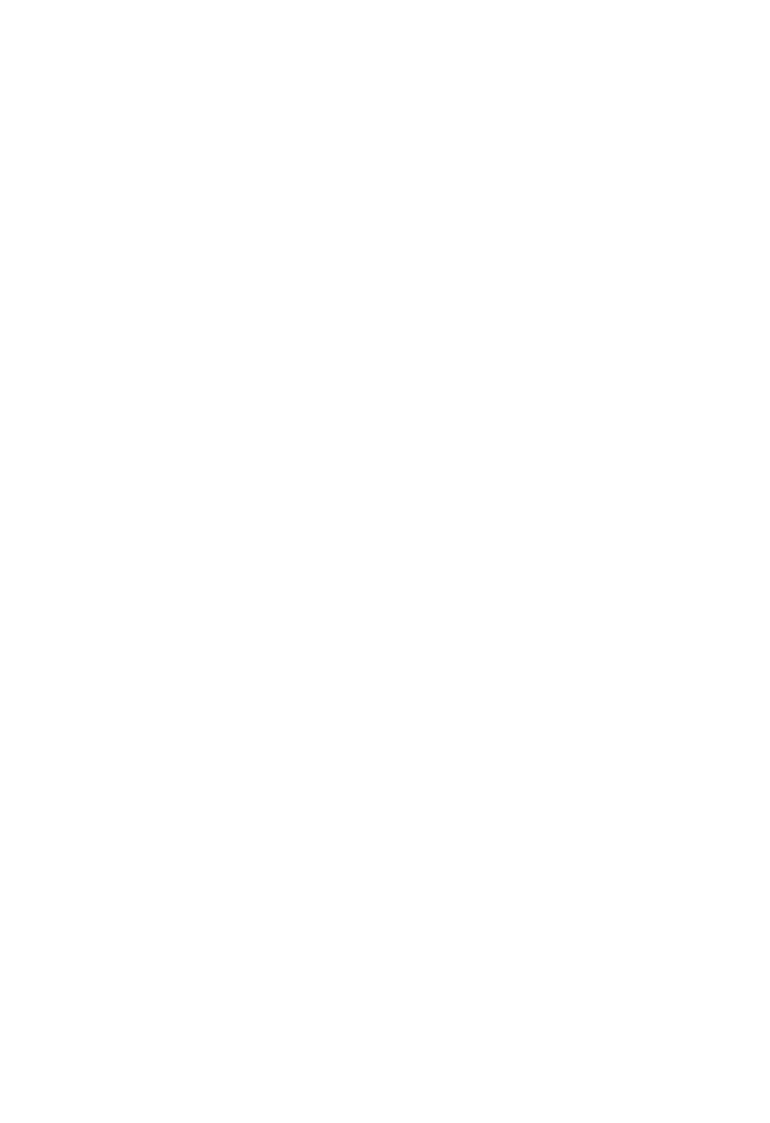
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Arna Wald 5	Opp.: Pian Pawakapen 5	Rev.: Brian Tu 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 -0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of guestions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties give
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 4	Final Grade: Reviewer 3



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ight (Round no.):	2 Room	n: Stage	3	Problem no.:	1
HOTE RIAW	SON	Signature:	0-	San	_

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.:	Rev.: \(\sum_{5} \)	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	Overall impression	☐ Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report.	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of guestions to both the	
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		archive your parties are	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6 I after IOC feedback and approved by EC on 2011-11-03	



ight (Round no.):	2	Room:	2	Stage:	3	Problem no.:	
REGUE	n		Sienahu	re: \	16	m	

A report should include:

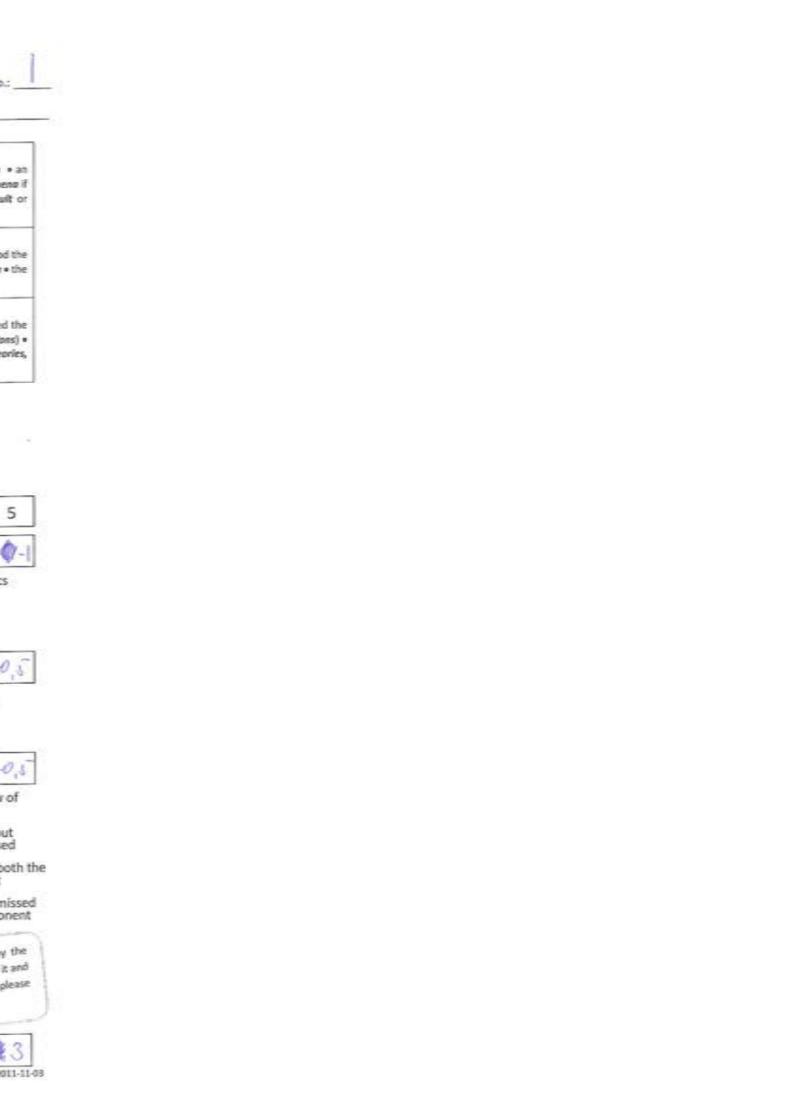
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Pland 5	Opp.: Thaland 5	Rev.:		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1 +	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent		
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties great		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer ather IOC feedback and approved by EC on 2011-11-03		



ight (Round no.):	2	Room:	2	Stage:	Problem no.:	1
uror: DKe	lle		Signati	ire.	Bille	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and apparent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Poland 5	Opp.: Thiland 5	Rev.:		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1 +/	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent		
☐ Appropriate models, conformity	the report	Draws attention to points missed		
of dimensions	☐ Relevance of the questions	by the reporter or the opponent		
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your partial gradies		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03		



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Fight (Ro	ound no.):	2_R	loom: 2	Stage	3	Problem no.:	1
laror:	Tan J	7	Signa	ture:	Ta	7	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the apparent challenged the reporter's understanding of the presented concepts, theories and principles * the apparent understood the
apparapriate mothematics presented * the apparent critiqued the experimental technique used and questioned the validity of the data * the
apparent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and apparent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.:	Opp.: Pravi	Rev.: Brian 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics v./L.,	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers 9°8′	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 - 0-5	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions → POOSE	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grown
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5



Round

Round: Fight Assista

NARASAK.

Trapom Scenjae

	ľ.	Stage 1			Stage 2			Stage 3		1	Stage 4	
Team	Thailand	USA	Poliond	USA	Poland	Thai land	Poland	Theiland	UsA			
luror	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Орр	Rev	Rep	Opp	Rev
Kathryn Zealand	b	7	7	3	6	3	7	5	4			
Kerry Parker	6	6	7	5	6	4	5	4	3			
Qian Sin	4	6	8	4	8	7	5	5	6			
Ulrike Regner	6	5	8	4	8	6	7	6	3			
Daniel Keller	7	6	6	5	8	5	6	6	4			
Jay Tan	6	7	8	6	B	7	4	5	5			
Acting Team Member	Nonthaphat Sinsuntitle	John Lukowski	Anna Mald	Karl Sewick	Radost Waszkiewia	Panithan Jeerosumand	Anna Wald	Pian Pawakapan	Brian Ta			
Rejected Problems									5			
Accepted Problem		5			16			1				

Signature Fight Assistant: NARASAK Double-checked with Scoring Guidelines by second Fight Assistant (signature): Jingon Semjue

Challenge Problem 4 Ligned film motor rejer

A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the obse application of appropriate mathematics • reasonable experimental technique to gother and record data (or demons appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to co complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the op appropriate mothematics presented • the apponent critiqued the experimental technique used and questioned the W opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the re important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just sup such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their sp
- The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were

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Rep.: Komania	Opp.: Australia 5	Rev.: U. K. 5
Alexandra Badut 5	Is a a c Edwards _	Shory Xu
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach
☑ Validity of conclusions	Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	d Clear and understandable	☐ Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1 🕹	Opponent ±1	Reviewer ±1 - ½
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
+ ☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		authive your payors or
Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent 6	Final Grade: Reviewer 5

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Probleman: 5
erved phenomena + an strate the phenomena if ommunicate difficult or
oponent understood the reliably of the data • the
eviewer appreciated the perficial observations; • ng of concepts, theories,
pecific role.
none to find.
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relevant physics proach onclusions swers
n ±1 O Inderstandable emanner ression
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horough review of discussion
wn opinion about ented or discussed
of questions to both the dthe opponent
ition to points missed rter or the opponent
nill be collected by the nt, so we can scan it and r partial grades - please d
eviewer 5 approved by EC on 2011-11-03

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JUU	unig	Guide	CHILLES

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ight (Round no.): _	Room	c	Stage: _	Problem no.:	_
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	konchow				-	

A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mothematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Romania 5	Opp.:_Australia	Rev.:_ UK 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0.5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 -0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of guestions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and mind erades - please
☐ Novelty of the report		archive your partial brown
☐ Contribution to the discussion	53-5-49	do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer



right (Round no.): 2	Room: 3	Stage: 1	Problem no.:	5
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A report should include:

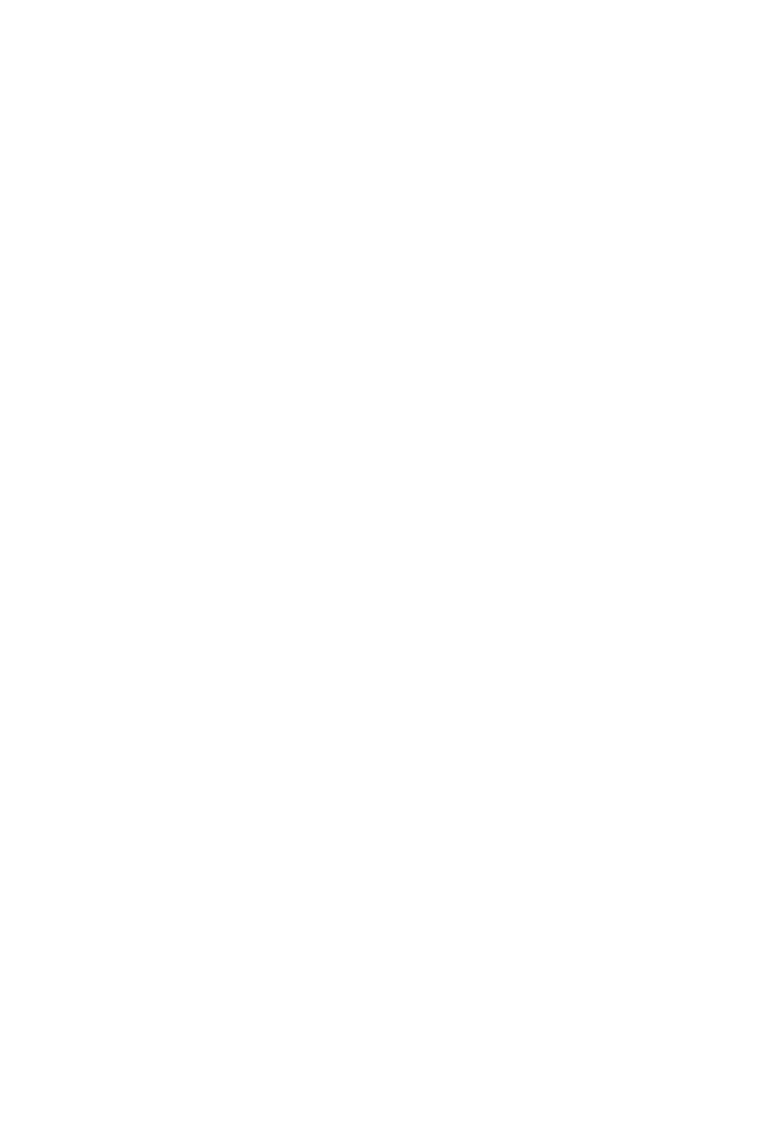
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mothematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 20 5	Opp.:_ A U 5	Rev.: 69 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☑ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☑ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1 0.5	Reviewer ±1 1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and grades - please
☐ Novelty of the report		archive your parties &
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer dafter IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.): 11 Room: 3 Stage: 1 Problem no.: 5

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.:5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 40.4	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and	of the report	topics presented or discussed
symbols	Finds shortcomings or errors in the report.	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and soil grades - please
☐ Novelty of the report		archite your parties a con-
☐ Contribution to the discussion	1.2	do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer 5



Fight (Round no.): 2 Room: 3 Stage: 1 Problem no.: 5

Juror: Ming Fung Signature: Ming Fung

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw switoble conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the neviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Romania 5	Opp.:_ Ans	Rev.: UK 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 +a.ſ	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 0	Opponent ±1 0	Reviewer ±1 0
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and
☐ Novelty of the report		archive your partial ground
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



Scoring	Guid	e	ines
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ight (Round no.):	2	Rooma	3	Stage: _	1	Problem no.: 15	
mor: Maitchis							

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the abserved phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 1 5	Opp.: Aus 5	Rev.: UK 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression
Reporter ±1 +0,5	Opponent ±1 40,5	Reviewer ±1 0 0 Provides a thorough review of report and discussion
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions	Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others Novelty of the report	☐ Contribution to the discussion	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please
Contribution to the discussion Final Grade: Reporter	Final Grade: Opponent 7	do not bend Final Grade: Reviewer dafter IOC feedback and approved by EC on 2011-11-03



Challenge problem 4 Lynd film motor accepted

Scoring Guidelines Fight (Round no.): 2 Room: 3 Stage: 2 Problem no.: 4

A report should include:

 a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena. application of appropriate mathematics • reasonable experimental technique to gather and record data (or demanstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles . the opponent understood the appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

 the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the important aspects (especially the controversial ones) * the reviewer's personal apinion was in evidence (not just superficial observations) * such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mothemotics used by the reporter and the opponent.

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Australia 5	Opp.: 4. K. 5	Rev.: Romania 5
Physics ±3	Physics ±3 + ½	Physics ±3 + ½
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
■ Scientific approach	- Scientific approach	Scientific approach
■ Validity of conclusions	- Validity of conclusions	☑ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1 - G 2	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
☑ Overall impression	Overall impression	⊕ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 + 1
- 🛱 Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
Novelty of the report		archive your parties by
Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent 6	Final Grade: Reviewer

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ght (Round no.):		Room;	Sta	ge:	Problem no.: _	
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A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

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appropriate mothematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

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important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
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principles and appropriate mathematics used by the reporter and the opponent

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Aus 5	Opp.:_ Uk 5	Rev.: Rom 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties o
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 4	Final Grade: Opponent	Final Grade: Reviewer



Fight (Ro	und no.]: _	2	Rooms	3	Stage:	7	Problem no.:	4
luror:	PEN	GP	HN.	Signati	ure:	Τ.	Pengpan	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

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appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the
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 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mothematics used by the reporter and the opponent
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- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: AU 5	Opp.: 68 5	Rev.: 180 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 6.5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1 0 -5	Opponent ±1	Reviewer ±1 1.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☑ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grant
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer



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ght (Round no.):	Room:	_Stage:Pro	blegrno.: 7
ror: #Kyuli	fill Signat	ure:	

A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

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such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the separter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, appanent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.: 5	Rev.: 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1 +0.2		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed		
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties a		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer		



Fight (Round no.): _ Room: _ 1 Stage: _ 2 Problem no.: _ 4

suror: _ Ming Fenf Signature: _ Ming Fung

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

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appropriate mathematics presented . the opponent critiqued the experimental technique used and questioned the validity of the data . the
opponent appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Aus 5	Opp.: UK 5	Rev.: Rom 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	☐ Overall impression	☐ Overall impression	
Reporter ±1 - 0.2	Opponent ±1	Reviewer ±1 +0-J	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
Explanation of formulae and symbols	Finds shortcomings or errors in	Relevance of questions to both the	
	the report	reporter and the opponent	
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and grades - please	
☐ Novelty of the report		arthive your parties a	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer	



Fight (Round no.):	2	Room:	3	Stag	2 3	Problem no : 4
suror: Fakhar						

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the apparent challenged the reporter's understanding of the presented concepts, theories and principles • the apparent understood the
appropriate mathematics presented • the apparent critiqued the experimental dechnique used and questioned the validity of the data • the
apparent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal apinion was in evidence (not just superficial abservations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Aug 5	Opp.: UK 5	Rev.: 5	
Physics ±3 Correct and relevant physics Scientific approach	Physics ±3 1 Correct and relevant physics 2 Scientific approach	Physics ±3 Correct and relevant physics Scientific approach	
☐ Validity of conclusions ☐ Accurate answers	Walidity of conclusions Accurate answers	☐ Validity of conclusions ☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1 0	
□ Clear and understandable □ Appropriate manner ○ Overall impression	Clear and understandable Appropriate manner Overall impression	Clear and understandable Appropriate manner Overall impression	
Reporter ±1 -95	Opponent ±1	Reviewer ±1 A A O	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
■ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent	
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed	
Slides, on-site experiments, audio, video, as appropriate	E Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
Novelty of the report		archive your partial ar	
Contribution to the discussion		do not bend	
Final Grade: Reporter 3	Final Grade: Opponent 7	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03	

Challenge problem 11 Cats Whister accepted

Scoring	Guid	elines
Judini	UUIU	CHILES

Fight (Round no.): 2 Room: 3 Stage: 3 Problem no.: 11

Juror: G. Jennings Signature: BCS Vennings

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mothematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial abservations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: U·K. 5	Opp.: Romania 5	Rev.: Australia 5	
Dominic Doctson	Horia Magurannu	Adirtya Sethi	
Physics ±3 + ½	Physics ±3	Physics ±3	
Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics	
Scientific approach	Scientific approach	Scientific approach	
Validity of conclusions	Validity of conclusions	 Validity of conclusions 	
Accurate answers	 Accurate answers 	 ■ Accurate answers 	
Presentation ±1	Presentation ±1 O	Presentation ±1	
Clear and understandable	Clear and understandable	☑ Clear and understandable	
Appropriate manner	Appropriate manner	Appropriate manner	
+ 🗹 Overall impression	Overall impression	Overall impression	
Reporter ±1 0	Opponent ±1	Reviewer ±1 0	
→ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
Structure	- Shows the strong and weak points	Expresses own opinion about	
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent	
 Appropriate models, conformity of dimensions 	Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
 Slides, on-site experiments, audio, video, as appropriate 	→☑ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
Novelty of the report		archive your parties are	
Contribution to the discussion		do not bend	
Final Grade: Reporter 6	Final Grade: Opponent 5	Final Grade: Reviewer I after IOC feedback and approved by EC on 2011-11-03	



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200	nnig	OUIL	10111100

Fight (Round no.):	2	Room:	3	Stage:	S _ P	roblem no.:	11
uror:	wittay	2		Signatu	re: 1	Vilge		
	Kandia	hapt	1xikit			,		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw switchle conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

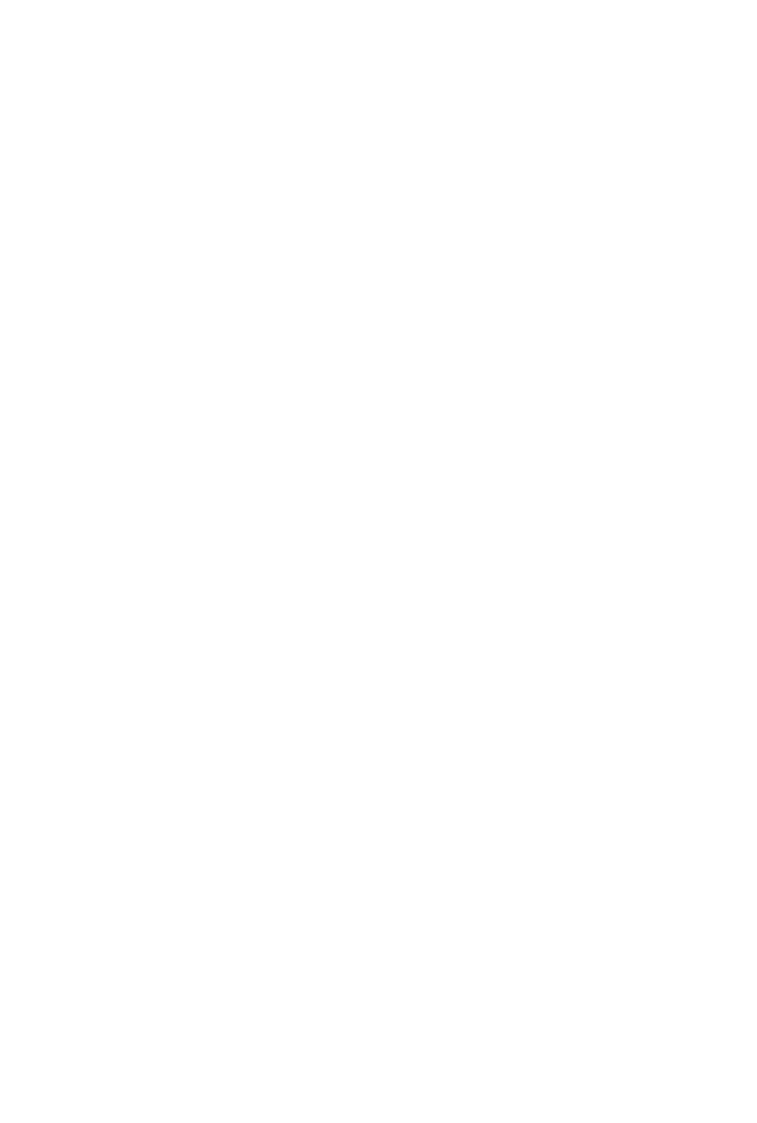
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.:	Opp.: Rom 5	Rev.: Aus 5	
Physics ±3	Physics ±3	Physics ±3	
. Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☑ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	☐ Overall impression	Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
Explanation of formulae and symbols	Finds shortcomings or errors in	☐ Relevance of questions to both the	
	the report	reporter and the opponent	
Appropriate models, conformity of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and erades - please	
☐ Novelty of the report		archive your parties or	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer	



Fight (R	ound no.):	2	Room:	3	Stage:	3	Problem no.:	11
luror:	PENO	PAN		Signati	ure:	7.	Penggan	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 68 5	Opp.: 80 5	Rev.: 10 5			
Physics ±3	Physics ±3	Physics ±3			
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics			
☐ Scientific approach	Scientific approach	☐ Scientific approach			
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions			
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers			
Presentation ±1 0.5	Presentation ±1	Presentation ±1			
(A) Clear and understandable	☐ Clear and understandable	☐ Clear and understandable			
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner			
Overall impression	Overall impression	☐ Overall impression			
Reporter ±1	Opponent ±1 1-5	Reviewer ±1			
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion			
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent			
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report				
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed			
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please			
References, proper citations of ideas and input of others					
☐ ,Novelty of the report					
Contribution to the discussion		do not bend			
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer d after 100 feedback and approved by EC on 2011-11-03			



	1	-	-	1	11
Fight (Round no.)	: // Ros	omc S	Stage: 5	Problem no.	- 01
uror: AV 101	Idiel	Signature	e: 1	1.	_
Justilla.	July 1	- 0	NI		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to odd to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.:5	Rev.: 5			
Physics ±3	Physics ±3 +0.29	Physics ±3			
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics			
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach			
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions			
Accurate answers	☐ Accurate answers	☐ Accurate answers			
Presentation ±1	Presentation ±1	Presentation ±1			
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable			
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner			
Overall impression	☐ Overall impression	Overall impression			
Reporter ±1	Opponent ±1	Reviewer ±1			
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion			
☐ Structure	Shows the strong and weak points of the report.	Expresses own opinion about topics presented or discussed			
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent			
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent			
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion				
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and			
☐ Novelty of the report		archive your parson or			
☐ Contribution to the discussion		do not bend			
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03			



Fight (Round no.):	2	_Room:	- 7	Stage:	3	Problem no.	- //
luror:	y ,	Feng	Signatur	e:	M	& Fren	e .

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent and reviewer each stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 5	Opp.: 样 Rom 5	Rev.: 15		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1 + e.s	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	Overall impression	Overall impression		
Reporter ±1 o	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about		
☐ Explanation of formulae and	of the report	topics presented or discussed		
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent Draws attention to points missed		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions			
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your partial grants		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 6	Final Grade: Opponent	Final Grade: Reviewer (after IDC feedback and approved by EC on 2001-11-09		



Fight (Round no.):	2	Rooms	3	Stage:	3	Problem no.: 11
turor: Zakhar	Mai	relig	Signatu	re: ()	ky	

A report should include:

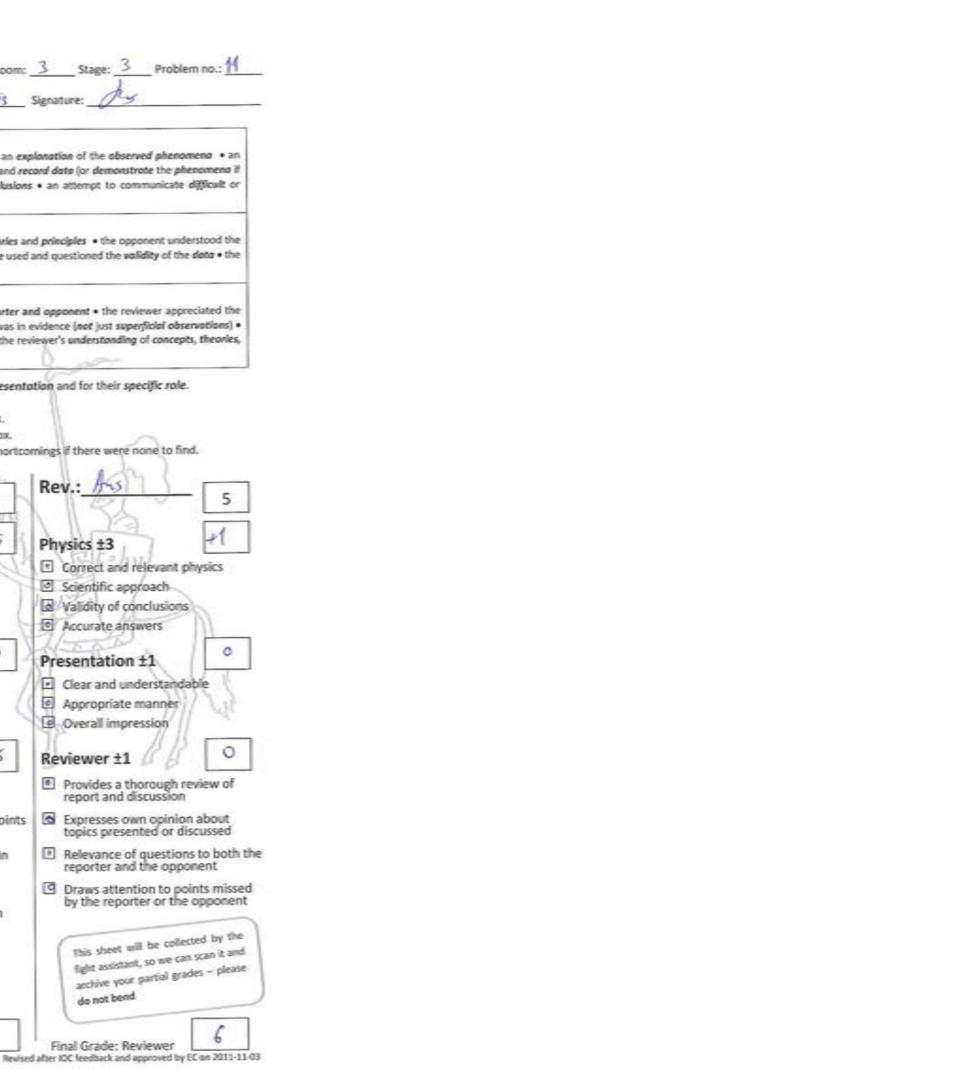
 a presentation of the appropriate concepts, theories and principles of the problem
 an explanation of the abserved phenomena application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: NK 5	Opp.: 6	Rev.: 5		
Physics ±3	Physics ±3	Physics ±3 Correct and relevant physics		
Correct and relevant physics	Correct and relevant physics Glassific approach	Scientific approach		
Scientific approach	Validity of conclusions	Walldity of conclusions		
Validity of conclusions Accurate answers	Accurate answers	Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
Clear and understandable	Clear and understandable	Clear and understandable		
Appropriate manner	Appropriate manner	Appropriate manner		
Overall impression	Overall impression	Overall impression		
Reporter ±1 0,5	Opponent ±1	Reviewer ±1 8 8 0		
Quality of experimental technique(s)	Response to the reporter's solution	 Provides a thorough review of report and discussion 		
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent		
Appropriate models, conformity of dimensions	Relevance of the questions			
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and		
☑ Novelty of the report		archive your parties or		
Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer		



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Round: Z Room: Sight Assistants: Jaru Julimoosik ; Rojman Tharmmas

		Stage 1			Stage 2			Stage 3			Stage 4	
Team Juror	Pon	Onn	Rev	Pon	Onn	Rev	Pon	Onn	Rev	Don	Onn	Rev
Gavin Jennings	Rep	Opp	5	Rep	Opp	Nev 7	Rep	Opp 5	6	Rep	Орр	Rev
	T	7	ь	4	6	6	7	7	6			
Nittaga Kanchanapusakit Taparksorn Penapan	Ь	8	Ь	6	ь	7	7	7	6			
Assen Kyuldjiev	5	Ь	5	4	5	6	6	5	5			
Ming Feng	5	Ь	6	4	4	7	6	7	7			
Zakhar Maizelis	4	7	6	3	7	5	6	7	6			
Acting Team Member	Alexandra Badot	Isaac Ednards	Yuging Xu	Grace Rehn	Nick champion	Anca Goldis	Dominic Dootson	Horia Magureno	Aditya Sethi			
Rejected Problems	4 Liquid	Film Moloz		_								
Accepted Problem	5 Two	haloons		4. Liquid	film mote	et .	11 col:	s whisker				

ignature Fight Assistant: Janu Juli roogi k

...... Double-checked with Scoring Guidelines by second Fight Assistant (signature):

Rojnapa Thakamas

500

Scoring Guidelines A report should include: · a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions an attempt to communicate difficult or complex ideas in an effective and understandable manner An opposition should show that: · the apparent challenged the reporter's understanding of the presented concepts, theories and principles · the apparent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report A review should show that: • the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role. . The reporter, opponent and reviewer each start with 5 points.

Rep.:NZ	Opp.:	Rev.: <i>IR</i>		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent Draws attention to points missed		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions			
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties so		
☐ Contribution to the discussion		do not bend		

Revised after IOC feedback and approved by EC on 2011-11-03



ght (Round no.):	2	Room:	4	Stage:	3	Problem go.:	6
nor: LAAS C	act	60	Signatu	ire: (0	1000	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: New Zenny 5	Opp.: BRAZIL 5	Rev.: 10.00 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1 0	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report			
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions			
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and grades - please.		
☐ Novelty of the report		archive your parties a		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer		

Scoring G	uide	lines

ight (Round no.):	77	Room: _	4	_Stage:	Tu	Broblem no.	6
aror: Week			Signati	ire:	A.	5	

A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics + reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented • the apparent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.

Rep.: NZ Nicholas Laus 5	Opp.: Br Things Bergand 5	Rev.: 1r Chager Madeliles 5
Physics ±3	Physics ±3	Physics ±3
El Correct and relevant physics	⊞ Correct and relevant physics	☐ Correct and relevant physics
	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	₩ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 /	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	E Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 /	Opponent ±1	Reviewer ±1 0,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
E Structure	Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of guestions to both th
 Appropriate models, conformit of dimensions 	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, au video, as appropriate	dio, 🖫 Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others	f	This sheet will be collected by the fight assistant, so we can scan it and such grades – please.
☐ Novelty of the report		archive your partial by
☐ Contribution to the discussion	64	do not bend
Simil Sandar Sanadar 8	Final Grade: Opponent	Final Grade: Reviewer 5

Rep.: NZ Nichola Lau	5	Opp.: Br Things Segment 5	Rev.: Ir Chagar Nagratibal 5
Physics ±3	1-05	Physics ±3	Physics ±3
El Correct and relevant phy	sics	E Correct and relevant physics	☐ Correct and relevant physics
		☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions		₩ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	110	☐ Accurate answers	☐ Accurate answers
Presentation ±1	/	Presentation ±1	Presentation ±1
Clear and understandable	e	⊞ Clear and understandable	El Clear and understandable
☐ Appropriate manner	188	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	37	Overall impression	Overall impression
Reporter ±1	1	Opponent ±1	Reviewer ±1 0,5
Quality of experimental technique(s)		Response to the reporter's solution	Provides a thorough review of report and discussion
E Structure		1 Shows the strong and weak p	oints 🖟 Expresses own opinion about
Explanation of formulae symbols	and	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both th reporter and the opponent
Appropriate models, con of dimensions	formity	the report Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experimer video, as appropriate	nts, audio,	Contribution to the discussion	
References, proper citati ideas and input of others	ions of		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report			archive your parual by
☐ Contribution to the discu	ession		do not bend
Final Grade: Reporter	\$7	Final Grade: Opponent	Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-0

ight (Round no.): 2	Room: 4 Stag	e: 3	Problem no.: 6	
CHAINOOT	Signature	Fors		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects [especially the controversial ones] the reviewer's personal opinion was in evidence [not just superficial observations] •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: NZ Nicholas 5	Opp.: 5	Rev.: IR 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics + -	Correct and relevant physics +	☐ Correct and relevant physics ↓
Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable ← ~	Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6
Quality of experimental + howo technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties a
Contribution to the discussion	1	do not bend



ght (Round no.):	2	Room: 4	Stage: 3	Problem no.:	6
me Mirke	4			~ 1	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw switable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: New Zealand 5	Opp.: Brazi	Rev.: 1 ran 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 0.3	Presentation ±1 0.5	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandable ☐ Appropriate manner
Overall impression Reporter ±1	Opponent ±1 +0.7	Reviewer ±1 0,5
Reporter ±1 40.2 Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
□ Explanation of formulae and symbols □ Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
of dimensions Slides, on-site experiments, audio, video, as appropriate	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan be also because
□ Novelty of the report		archive your partial grand
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 7	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



ight (Round no.): 2 Room: 4 Stage: 3 Problem no.: 6

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the apponent.

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: NZ 5	Opp.: BRAZIL 5	Rev.: IRAN 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	🗔 scientific approach	Scientific approach
□ Validity of conclusions	☑ Validity of conclusions	□ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	- Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
—El Overall impression	☐ Overall impression	□ Overall impression
Reporter ±1 +0.5	Opponent ±1	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Rejevance of the questions	Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can see please
Novelty of the report		anchive your parcial grant
Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03

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Fight (Round no.): _	2	Room:	4	Stage: 2	Problem no.:	12
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Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the apponent challenged the reporter's understanding of the presented concepts, theories and principles • the apponent understood the
appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: You 5	Opp.:_ N 5	Rev.: <u>BR</u> 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
☐ References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report		archive your parties of
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent 6	Final Grade: Reviewer



ight (Round no.);	2	Room	4	Stage:	2	Problem	10.:	12
ror Llas (10	ul	0	_

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: IRAN 5	Opp.: New ZEALEND 5	Rev.: BRIZIL 5
Physics ±3 - 0.5	Physics ±3	Physics ±3 6.5
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 0	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grand
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6

Scoring Guidelines	Fight (Round no.): 1 Room: 4 Stage: 2 Problem no.: 12
application of appropriate mathematics • reasonable	s and principles of the problem * an explanation of the observed phenomena * an experimental technique to gother and record data (or demonstrate the phenomena if tal findings to draw suitable conclusions * an attempt to communicate difficult or ner
	ing of the presented concepts, theories and principles • the opponent understood the ritigued the experimental technique used and questioned the validity of the data • the nd weaknesses of the report
Important aspects (especially the controversiol ones)	nary of the performances the reporter and apponent • the reviewer appreciated the • the reviewer's personal opinion was in evidence (not just superficial observations) • and demonstrated, where possible, the reviewer's understanding of concepts, theories,

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.

principles and appropriate mathematics used by the reporter and the apponent

- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: It 5	Opp.: NZ Tess Breiten 5	Rev.: Br Diego de Moura 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
— ☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
— ☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 0,5	Presentation ±1
Clear and understandable	☐ Clear and understandable	🗎 Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	B Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
⁹ □ Novelty of the report		archive your partial great
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 8	Final Grade: Reviewer dafter ICC feedback and approved by EC on 2011-11-03

ght (Round no.): 2 Room: 4 Stage: 2 Problem no.: 12

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: IRAN 5	Opp.: NZ 5	Rev.: BRAZIL 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0.5	Presentation ±1	Presentation ±1
Gléar and understandable	Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +050
Quality of experimental technique(s)	Response to the reporter's solution	 Provides a thorough review of report and discussion
Structure n/a	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, . yideo, as appropriate	Contribution to the discussion	
References, proper citations of jdeas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
Novelty of the report		archive your parus- 6
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



ight (Round no.): _	2 Roo	m: 4	Stage:	2	Problem no.:	12
uror: Michae						

A report should include:

 a presentation of the appropriate concepts, theories and principles of the problem
 an explanation of the observed phenomena
 an application of appropriate mothematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the apparent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- · the reviewer succeeded in giving an objective summary of the performances the reporter and opponent · the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal apinion was in evidence (not just superficial abservations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

Rep.: Tran 5	Opp.: New Zealand	Rev.: Brazi
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0.2	Presentation ±1	Presentation ±1 0.3
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 0.1
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partiel graves
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 4	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



A report should include:

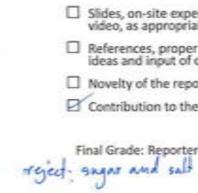
· a presentation of the appropriate concepts, theo application of appropriate mathematics * reasonab appropriate) . linking of theoretical and experim complex ideas in an effective and understandable m

An opposition should show that:

· the opponent challenged the reporter's understa appropriate mathematics presented • the apponen opponent appreciated and highlighted the strengths

- · the reviewer succeeded in giving an objective sur important aspects (especially the controversial one such personal opinions were informative, non-trivia principles and appropriate mathematics used by the
- . The grade for each of the three teams consis
- . The reporter, opponent and reviewer each s
- . Consider the following suggestions to add to
- · Select each partial grade from each section a
- . Don't punish missing 'answers' when no que

Rep.:	Opp.: N 2 5	Rev.: 8R 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics ﴿	Correct and relevant physics +	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	Clear and understandable
☑ Appropriate manner	Appropriate manner	Appropriate manner
☐ Overall impression	☑ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental _ \ technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols No formula	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion	
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your paroas gr
Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent	Final Grade: Reviewer



Juror: CRAIN	001	Signature:	tigits	
ries and principles of the ic experimental techniquental findings to draw s anner	ue to gather and	record data (or	demonstrate the	phenomena if
ding of the presented or critiqued the experimen and weaknesses of the r	ntal technique use			
nmary of the performan i) • the reviewer's person I and demonstrated, whe reporter and the oppose s of a partial grade for	nal opinion was i ere possible, the r ent	n evidence (not reviewer's under	just superficial of rstanding of conce	bservations) • epts, theories,
art with 5 points. or deduct from the inited write it in the corrections were posed or n	tial 5 points. sponding box.			
op.:_ N 2	- 5	Rev.:_	BR	- s
		1. 16.		
ysics ±3	1	Physics	±3	1
Correct and relevan	t physics +	☑ Corre	ct and relevant	physics
Scientific approach		☐ Scient	tific approach	
Validity of conclusion	ons	☐ Validi	ty of conclusion	ns
Accurate answers		☐ Accur	ate answers]]]
esentation ±1		Present	ation ±1	1
Clear and understar	ndable		and understan	dable
Appropriate manne			priate manner	
Overall impression			all impression	
ponent ±1	1	Review	er±1	
Response to the rep solution	porter's	Provide report	des a thorough t and discussio	review of n
Shows the strong ar of the report	nd weak point:	Expre topics	sses own opini s presented or	on about discussed
Finds shortcomings the report	or errors in	Relev repor	ance of question ter and the opp	ons to both the ponent
Relevance of the qu Contribution to the		Draw by the	s attention to p e reporter or th	oints missed ne opponent
		Eght sech	sheet will be coll assistant, so we c ive your partial g not bend	lected by the an scan it and rades – please

ight (Round no.): 2 Room: 4 Stage: 1 Problem no.: 3

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
opplication of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

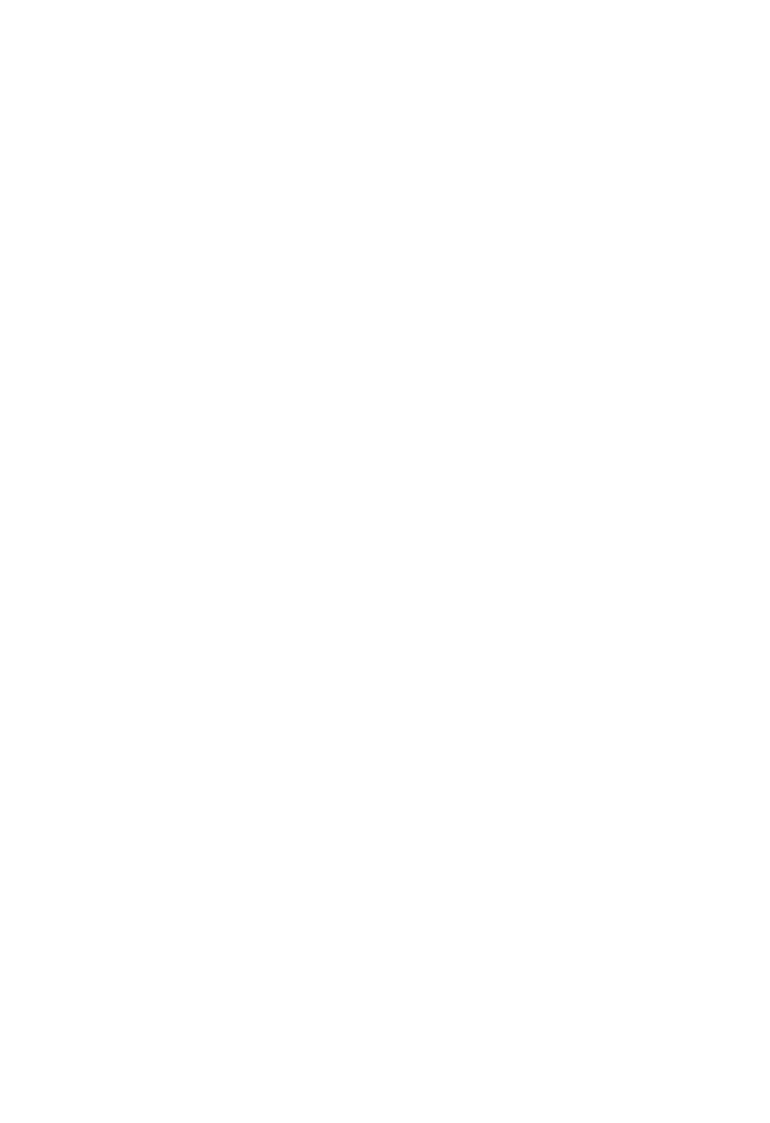
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: BRIL 5	Opp.: RAN 5	Rev.:_ NZ 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable
Appropriate manner Overall impression Reporter ±1	Appropriate manner Overall impression Opponent ±1	Appropriate manner Overall impression Reviewer ±1
Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions	□ Response to the reporter's solution □ Shows the strong and weak points of the report □ Finds shortcomings or errors in the report □ Relevance of the questions	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, yideo, as appropriate References, proper citations of ideas and input of others Novelty of the report Contribution to the discussion	☐ Contribution to the discussion	This sheet will be collected by the light assistant, so we can scan it and archive your partial grades – please do not bend



Fight (Round no.): 2	Room: 4 Stage: 1	_ Problem no.: 3
Juror: CHAINGOT	Signature:	

A report should include:

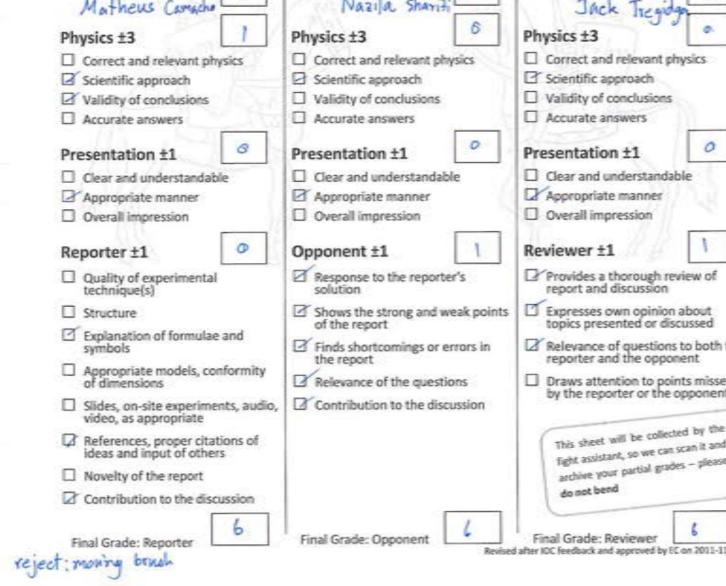
· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics + reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented • the apparent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- · the neviewer succeeded in giving an objective summary of the performances the reporter and opponent · the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Brazil Matheus Camacha 5	Opp.: Iran	Rev.: New Zeland 5 Jack Tregidge 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
Scientific approach	Scientific approach	☐ Scientific approach		
☑ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	Clear and understandable			
☑ Appropriate manner	Appropriate manner	Appropriate manner		
Overall impression	☐ Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points			
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
 Appropriate models, conformity of dimensions 	Relevance of the questions	Draws attention to points missed by the reporter or the opponent		
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion	1		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and make a special grades - please		
☐ Novelty of the report		archive your parus a		
Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6		



	Fight (Round no.): // Room:	4 Stage: 1 Problem no.: 3		
Scoring Guideli	nes _{Juroe:}	Signature:		
A report should include:	pts, theories and principles of the problem * an ex	nianotine of the observed phenomena + an		
application of appropriate mathematics •	reasonable experimental technique to gother and re experimental findings to draw suitable conclusion	cord data (or demonstrate the phenomena if		
An opposition should show that	:			
• the opponent challenged the reporter's	understanding of the presented concepts, theories a opponent critiqued the experimental technique used	nd principles • the opponent understood the and questioned the validity of the data • the		
A review should show that:				
	ective summary of the performances the reporter a			
	rsiof ones) • the reviewer's personal opinion was in non-trivial and demonstrated, where possible, the re- sed by the reporter and the opponent			
The sands for each of the three terms	s consists of a partial grade for physics, present	etion and for their marific role		
 The grade for each of the three team The reporter, opponent and reviewe 		and and the trick appropriate.		
	o add to or deduct from the initial 5 points.			
 Select each partial grade from each s 	ection and write it in the corresponding box.			
 Don't punish missing 'answers' when 	no questions were posed or not finding shortco	mings if there were none to find.		
Rep.: Br	Opp.: Ir	Davis N7		
		Rev.: NZ Jack Tregiolga 5		
Mothes Carriedo	Magiza Sharifi	Jack region		
Physics ±3	Physics ±3	Physics ±3		
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1 /		
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1 0%	Opponent ±1	Reviewer ±1 // /		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points	⊞ Expresses own opinion about		
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed B Relevance of questions to both the		
Appropriate models, conformity of dimensions	the report	reporter and the opponent Draws attention to points missed		
Slides, on-site experiments, audi video, as appropriate	io, Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parus. 8		
Contribution to the discussion		do not bend		

Final Grade: Opponent

Final Grade: Reporter

ge: _/_ Problem	100:_3_		
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impression			
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presented or discu	ussed		
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Scoring	Guiu	elliles

ight (Round no.):	2	Room:	4	Stage:	Problem no.:	3
					aco (2,1)	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: BeAZIL 5	Opp.:	Rev.: UK W ZEMMP 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☐ Overall impression
Reporter ±1 0	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	 Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak po of the report	oints Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors i	
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grown
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-0:

ight (Round no.): Room	1: <u>4</u> Stage:	Problem no.: 3
wor: 7 SONE		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important ospects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate motheratics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: BR 5	Opp.: 18 5	Rev.: AN NZ 5
Physics ±3 Correct and relevant physics	Physics ±3 ☐ Correct and relevant physics	Physics ±3 ☐ Correct and relevant physics
☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial growth
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer dater IOC feedback and approved by EC on 2011-11-03

ight (Round no.):	2	Room: Z	Stage:	Problem no.: 3
aror: Micha	1 10	Smith Sie	nature:	1.71

A report should include:

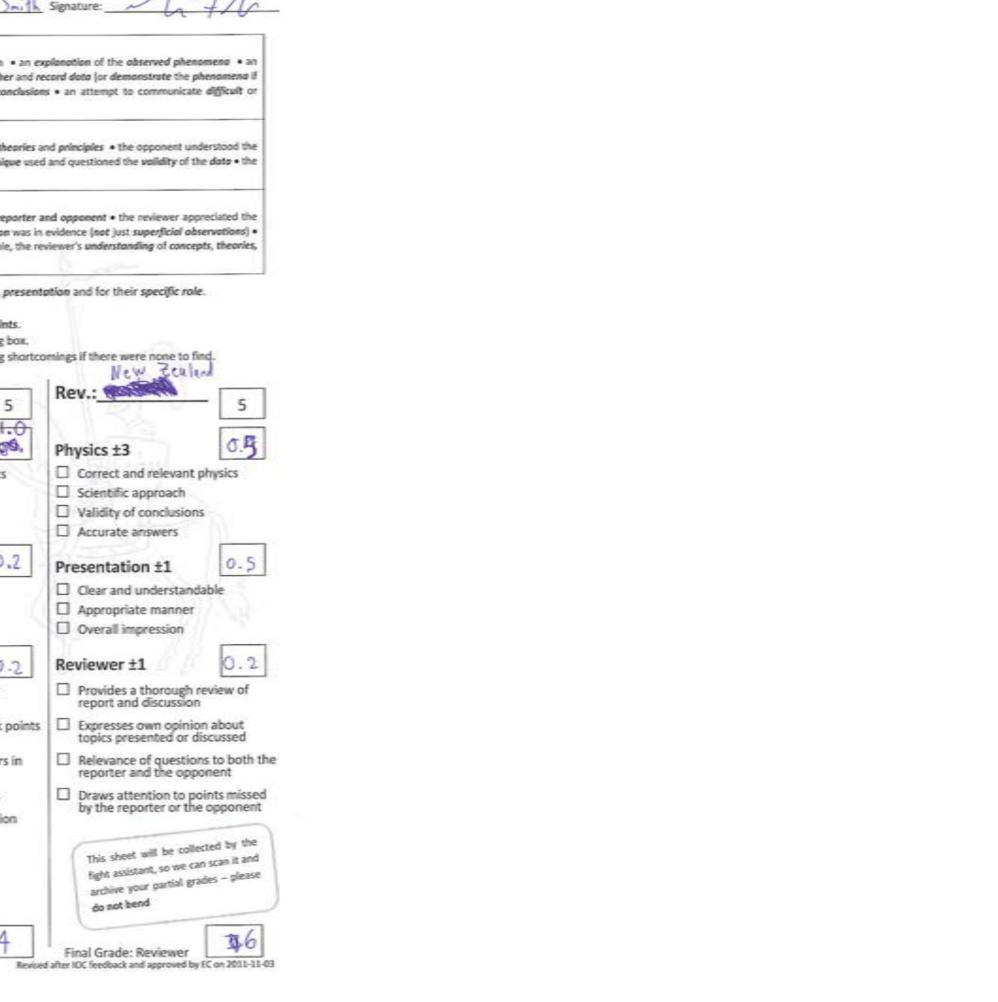
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Brazil 5	Opp.: Ican 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0.3	Presentation ±1	Presentation ±1 0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 O.1	Opponent ±1	Reviewer ±1 0.2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parses a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer



Round: Room: 4 Fight Assistants: Ram Minjardenphan., Adithep

		Stage 1			Stage 2			Stage 3			Stage 4	
Team Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
John Balcombe	7	7	8	4	6	6	7	8	6			
Chaiwoot Boonyasiriu	6	6	l	3	8	8	6	8	6			
Volodymyr Kulinskyj	6	5	8	4	8	8	7	7	5			
Lars Gislan	5	Ь	P	4	7	6	7	8	6			
Fong Song	5	5	P	.3	6	6	6	8	8			
Michael F. Smith	7	4	6	4	Ь	6	5	7	6			
Acting Team Member	Matheus Camadho	Navila sharifi	Jack Tregraga	Nazila Shanifi Amha	Tess Beithmorn	Drgo Roberto de Moura	Nicholas Lam	Things Ross-white Benganoschi	Shazal Naghbilak			
Rejected Problems		, 15 Movi	ng Bush	No. 8	Sugar om	ad Salf						
Accepted Problem	No. 9 A	stificail M	lusole	No.12	Thick le	ws.	No. 6 M	lagnus G	jder.			

Scoring	Guid	elines
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Fight (Round no.): 2 Room: 5 Stage: 1 Problem no.: 8

Juror: Felicia Ullstad Signature: Flue Illu

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Bulgeria 5	Opp.: Kenya 5	Rev.: Chink 5
Physics ±3	Physics ±3	Physics ±3 + 1
☐ Correct and relevant physics+↓	☐ Correct and relevant physics —	☐ Correct and relevant physics+
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable —	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression —	☐ Overall impression
Reporter ±1 0	Opponent ±1	Reviewer ±1 // +1
 Quality of experimental technique(s) 	Response to the reporter's solution + ~	☐ Provides a thorough review of report and discussion +
☐ Structure	☐ Shows the strong and weak points of the report —	Expresses own opinion about topics presented or discussed +
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent.
 Appropriate models, conformity of dimensions 	the report ~ Relevance of the questions +	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion —	by the reporter or the opponent
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties as
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 3	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



Fight (Round no.): 2 Room: 5 Stage: / Problem no.: 8

Junor: Warrange Kinglindary & Control of the Stage: / Problem no.: 8

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Bulgaria 5	Opp.: Kenya	5	Rev.: China 5	
Physics ±3 +2	Physics ±3	+1	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant ph	ysics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers	
Presentation ±1	Presentation ±1	-1	Presentation ±1	
☐ Clear and understandable	Clear and understandab	ole	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner	
☐ Overall impression	☐ Overall impression		Overall impression	
Reporter ±1	Opponent ±1	0	Reviewer ±1 +	
Quality of experimental technique(s)	Response to the reports solution	er's	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and w	veak points	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	☐ Finds shortcomings or e	errors in	Relevance of questions to both reporter and the opponent	th
 Appropriate models, conformity of dimensions 	Relevance of the questi	ions	☐ Draws attention to points missi	ed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the disc	cussion	by the reporter or the opponer	-
References, proper citations of ideas and input of others			This sheet will be collected by the light assistant, so we can scan it an	d
☐ Novelty of the report			archive your parus 6	
☐ Contribution to the discussion			do not bend	-
Final Grade: Reporter	Final Grade: Opponent	5	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-1	



ight (Round no.):	2	Room:	5	Stage:	Problem no.:	T
YE YE			Signat	ure- (to	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Bulgaria	Kenya	china,
Rep.: Stateon 5	Opp.: Thubun Xinu 5	Rev.: Lu Kohan 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +/
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
☐ Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
□ Novelty of the report		archive your parties &
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer

ight (Round no.): 2 Room: 5 Stage: 1 Problem no.: 8

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Bulgaria 5	Opp.: Kenya 5	Rev.: Ching 5
Physics ±3	Physics ±3	Physics ±3 45
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 -0,5	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	El Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1 + 6,3	Opponent ±1	Reviewer ±1 6,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and
□ Novelty of the report		archive your parties great
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 2	Final Grade: Reviewer salter IOC feedback and approved by EC on 2011-11-03

ight (Round no.): 2 Room: 5 Stage: 1 Problem no.: 8

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw switoble conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summory of the performances the reporter and opponent * the reviewer appreciated the
 important ospects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and oppropriate mothernatics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Bulgaria 5	Opp.: Kenya 5	Rev.: China 5	
Physics ±3	Physics ±3	Physics ±3 +1	
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1 + 1/2	
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner	
☐ Overall impression	☐ Overall impression	☐ Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent	
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed	
Slides, on-site experiments, audio, video, as appropriate	S. Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and erades - please.	
☐ Novelty of the report		archive your parous pre-	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 6	Final Grade: Opponent 3	Final Grade: Reviewer Jaher IDC feedback and approved by EC on 2011-11-09	



Fight (Round no.): 2 Room: 5 Stage: 1 Problem no.: 8

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the apponent challenged the reporter's understanding of the presented concepts, theories and principles * the apponent understood the
appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.:	Opp.:KĒ	Rev.:
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☑ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +/	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable →	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +/
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	☐ Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion ✓	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and sight assistant, so we can scan it and
□ Novelty of the report		archive your parties &
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 3	Final Grade: Reviewer lafter IOC feedback and approved by EC on 2011-11-03



Fight (Round no.): 2 Room: 5 Stage: 2 Problem no.: 9

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw switable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Kenya	Opp.: China 5	Rev.: Bulgaria 5		
Physics ±3	Physics ±3	Physics ±3 +2		
☐ Correct and relevant physics ~ ~	☐ Correct and relevant physics + -	☐ Correct and relevant physics +		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions 4		
☐ Accurate answers~	☐ Accurate answers +	☐ Accurate answers +		
Presentation ±1 -45	Presentation ±1	Presentation ±1		
☐ Clear and understandable ~	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	Overall impression		
Reporter ±1	Opponent ±1 + 1	Reviewer ±1 + 1		
Quality of experimental technique(s) —	Response to the reporter's solution ~	Provides a thorough review of report and discussion -		
☐ Structure —	☐ Shows the strong and weak points of the report +	Expresses own opinion about 4 topics presented or discussed		
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of guestions to both the		
☐ Appropriate models, conformity	the report +	reporter and the opponent +		
of dimensions —	☐ Relevance of the questions +	Draws attention to points missed by the reporter or the opponent		
Slides, on-site experiments, audio, video, as appropriate ♣	☐ Contribution to the discussion 4			
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties a		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer lafter IOC feedback and approved by EC on 2011-11-08		

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Juror: Wanson Kuchi lang france Image 2 Problem no.: 9

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.

Rep.: Kenya 5	Opp.: China 5	Rev.: Bulgaria. 5
Physics ±3	Physics ±3	Physics ±3 +9
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols	Finds shortcomings or errors in the report	Relevance of questions to both th reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grant
☐ Contribution to the discussion		do not bend
3	Final Grade: Opponent	Final Grade: Reviewer 8

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A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the Important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apparent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

* Don't punish missing answers when no	China.	Bulearia
Rep.: Irona Wanjau 5	Opp.: Gorg Then you 5	Rev.: Milko Brukov 5
Physics ±3	Physics ±3 + 1/2	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1 + 1/2	Reviewer ±1 +/
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent.
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent 7	Final Grade: Reviewer 7 safter IOC feedback and approved by EC on 2011-11-03



ight (Round no.):	2	Room:	5	Stage:	2	Problem no.:	9	
ror: Kily 1	helh	76.00m	Signatu	ire:	H			

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * a
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult o
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • th
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Kenya 5	Opp.: Clina 5	Rev.: Bulgaria 5
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 0
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Reporter ±1	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Opponent ±1 (), 2	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Reviewer ±1
Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	□ Response to the reporter's solution □ Shows the strong and weak points of the report □ Finds shortcomings or errors in the report □ Relevance of the questions □ Contribution to the discussion	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others Novelty of the report Contribution to the discussion	Final Grade: Opponent	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend Final Grade: Reviewer Labor IOC feedback and approved by EC on 2011-11-03

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Contribution to the discussion	-		
J Novelty of the report		bried for ob	
A References, proper citations of ideas and input of others		This sheet will be collect will be collect with the collection of	pue ti uest
Slides, on-site experiments, audio, video, as appropriate	Contribution to the disc		adt vel t-
Appropriate models, conformity of dimensions	Belevance of the questi	df no histhogen entry vd	
sjoquils	e no sgnimoottoomings or e The report	ni sto reporter and the opp	to both th
anstaurite L The selumot formulae and	w bns groots and shoots and w	sk points Expresses own opinion to be compared or co	passno
(Quality of experimental technique(s)	Response to the reporte	report and discussion	
eporter ±1	1± fnenoqq0	Reviewer ±1	Y. +
noizzarqmi ilanavO [noissanqmi llsnavO 🔲	noiszenqmi llesevO 🗆	
Appropriate manner	□ Appropriate manner	nannem steinqonqqA	
Clear and understandable	☐ Clear and understandab	Gear and understance	alc
O 1± noitetnesen	Presentation ±1	O Presentation ±1	0
S Accurate answers	Z Accurate answers	znewers etstude answers	_
Validity of conclusions	anoisubnoo to ytibileV	To Validity of conclusion	
Scientific approach	doeongge oifidneios 🗆	Scientific approach	
Correct and relevant physics	Correct and relevant ph	그리지 않는 것이 없는 것이 없다면	sziski
hysics ±3	Physics ±3	₽hysics ±3	1+
Truga Wenjan	Enough Enoug	22020	=
de: Kenya :. de	PAIND : ddo	S Rev.: Bulbank	S
The grade for each of the three teams of The reporter, opponent and reviewer to Consider the following suggestions to a Select each partial grade from each sec Don't punish missing 'answers' when n	ach start with 5 points. Idd to or deduct from the initial 5 tion and write it in the correspon	strikes and gel	
A review should show that: • the reviewer succeeded in giving an object important aspects (especially the controvers such personal opinions were informative, nor principles and appropriate mathematics used	al ones) • the reviewer's personal or 	do laksiĝesque teu(son) esnebive ni eeur nolei	• (snaldav)
The dynamics bluods notized on the reporters and a strategies of the subsection of the contract of the contrac	ponent critiqued the experimental 6		
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Final Grade: Opponent

Final Grade: Reporter

Final Grade: Reviewer Dy EC on 2011-1103 Revised by EC on 2011-1103

Fight (Round no.): 2 Room: 5 Stage: 2 Problem no.: 9

Junor: Kwa ng Kinn Signature: Kwa ng

A report should include:

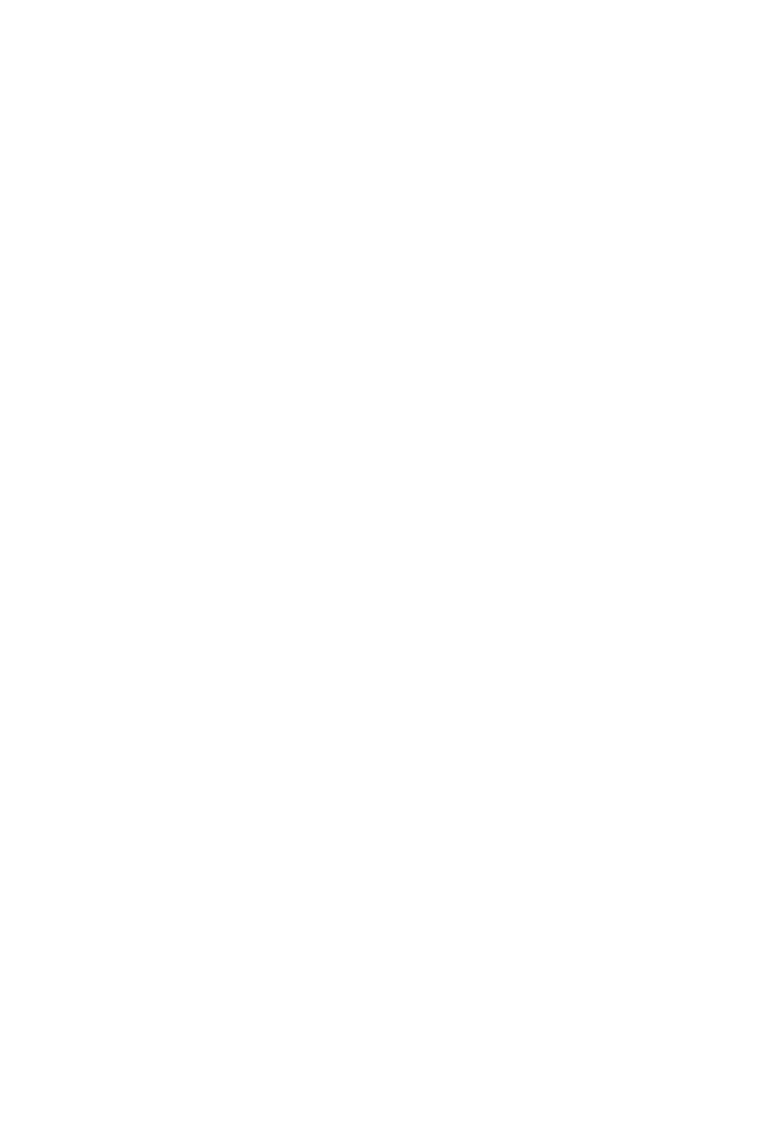
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: K ² 5	Opp.:	Rev.: 34 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics →	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 -1	Presentation ±1 0	Presentation ±1
☐ Clear and understandable ☐	☐ Clear and understandable	M Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +/
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties si
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 2	Final Grade: Opponent	Final Grade: Reviewer safter IOC feedback and approved by EC on 20(1-11-03



Fight (Round no.): 2 Room: 5 Stage: 3 Problem no.: 5

Junor-Fellicia Ullstad Signature: Fellia Ullst

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 paints.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: China	Opp.: Bulgaria	Rev.: Kenya
Guanghe Kong 5	Mikely Guitalev 5	Nathan Antroho 5
Physics ±3 +1,5	Physics ±3	Physics ±3 -0,5
☐ Correct and relevant physics +	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach + -	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions +	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers +	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +4.5	Presentation ±1 - 0,5	Presentation ±1 - Q5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner—	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1 0	Opponent ±1 +0,5	Reviewer ±1 -
☐ Quality of experimental technique(s).	Response to the reporter's solution #	Provides a thorough review of report and discussion —
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed —
Explanation of formulae and symbols —	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions +	☐ Relevance of the questions+	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate ←	☐ Contribution to the discussion —	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent 6	Final Grade: Reviewer 3

5 Stage: 7 Problem Signature: Fluse 1	Uld_		
planation of the observed phenom cord data for demonstrate the phen s • an attempt to communicate di	nomena il		
nd principles • the opponent under and questioned the validity of the d			
nd opponent • the reviewer apprec evidence (not just superficial observiewer's understanding of concepts,	vations) •		
ntion and for their specific role.			
mings if there were none to find.			
Rev.: Kenya Nathan Antroho	5		
Physics ±3	-6,5		
Correct and relevant phy			
Scientific approach	pacs		
☐ Validity of conclusions			
☐ Accurate answers			
Presentation ±1	- Q5		
☐ Clear and understandab			
Appropriate manner	E		
Overall impression			
Reviewer ±1			
Provides a thorough rev report and discussion —	iew of		
Expresses own opinion a topics presented or disc	about		
Relevance of questions to reporter and the oppon	to both the		
Draws attention to poin by the reporter or the o	ts missed pponent		
	ed by the		
This sheet will be collecte light assistant, so we can s	can it and		
archive your parcor or	s – please		
do not bend			
	2		
Final Grade: Reviewer			

ight (Round no.): 2 Room: 5 Stage: 3 Problem no.: 5

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

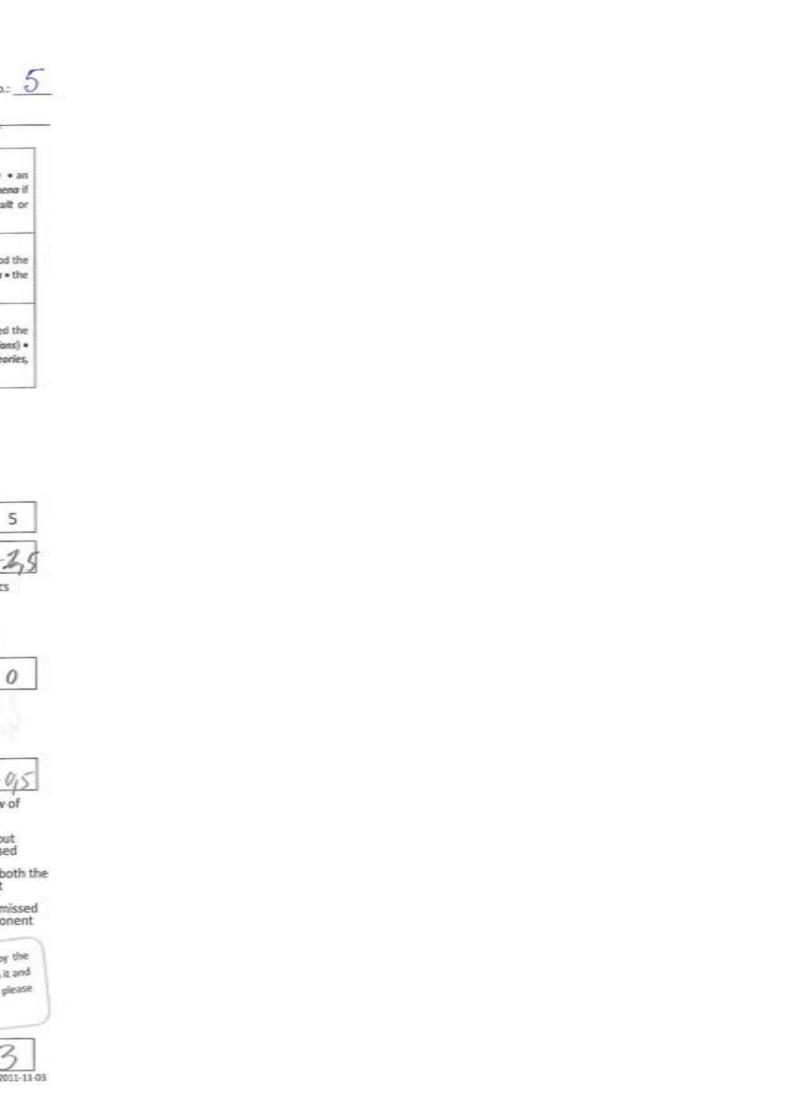
Rep.: China 5	Opp.: Bulgania 5	Rev.: Kenya- 5
Physics ±3	Physics ±3 +2	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 +	Opponent ±1 G	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grand
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer Latter IOC feedback and approved by EC on 7011-11-09

Scoring Gui	deline	Fight (Round no.):		5 Stage: 3 Proble	m no.:
application of appropriate math	iate concepts, th emotics • reason etical and experi	able experimental technique imental findings to draw sai	to gother and re	planation of the observed phenor cord data (or demonstrate the phe s • an attempt to communicate	enomeno if
	reporter's undersi	est critiqued the experiments	of technique used	nd principles * the apponent under and questioned the validity of the	
important aspects (especially the	ing an objective : e controversial o armative, non-tri	nes) • the reviewer's persona viol and demonstrated, where	of opinion was in possible, the re-	nd opponent + the reviewer appro evidence (not just superficial obse viewer's understanding of concept	rvations) •
The reporter, opponent and Consider the following sugg Select each partial grade fro	d reviewer each gestions to add om each section	start with 5 paints. to or deduct from the initial and write it in the corresp	al 5 points. onding box.	ntion and for their specific role. mings if there were none to fine Kenya.	
Rep.: Con Guarghe	5	Opp.: Nikolay	- 5	Rev.:	5
Physics ±3 Correct and relevant phy Scientific approach Validity of conclusions Accurate answers	ysics C	Physics ±3 Correct and relevant place of Scientific approach Validity of conclusion Accurate answers		Physics ±3 Correct and relevant pl Scientific approach Validity of conclusions Accurate answers	nysics
Presentation ±1		Presentation ±1	O	Presentation ±1	0
☐ Appropriate manner ☐ Overall impression		Appropriate manner Overall impression		☐ Appropriate manner ☐ Overall impression	
Reporter ±1	0 0	Opponent ±1	0	Reviewer ±1	0
Quality of experimental technique(s)		Response to the repo	rter's	Provides a thorough re- report and discussion	view of
☐ Structure	E	Shows the strong and	weak points	☐ Expresses own opinion	about
Explanation of formulae symbols	and	of the report Finds shortcomings or	r errors in	topics presented or dis	to both t
Appropriate models, cor of dimensions	nformity	the report Relevance of the ques	stions	reporter and the oppor Draws attention to poir	nts misse
Slides, on-site experimer video, as appropriate	nts, audio,	Contribution to the di	scussion	by the reporter or the o	-
References, proper citat ideas and input of other	ions of			This sheet will be collect fight assistant, so we can	
☐ Novelty of the report				archive your partial grav-	es - piease
☐ Contribution to the disc	ussion			do not bend	
Final Grade: Reporter	5	Final Grade: Opponent	Penised	Final Grade: Reviewer after IOC feedback and approved by EC	5 on 2011-11

Scoring Guidelines Fight (Round no.): 2 Room: 5 Stage: 3 Problem no.: 5 A report should include: • a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an appropriate) • linking of theoretical and experimental technique to gother and record data (or demonstrate the phenomena of appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner An opposition should show that: • the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understand the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report A review should show that: • the reviewer succeeded in giving an objective summany of the performances the reporter and opponent • the reviewer appreciated the

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 Important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Clina 5	Opp.: Belgenic 5	Rev.: Kenya 5
Physics ±3	Physics ±3	Physics ±3 -2,5
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 -0,5	Presentation ±1 0	Presentation ±1 0
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 + 0,3	Opponent ±1 Response to the reporter's solution	Reviewer ±1 -0,5 Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	7 of the report Prinds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parual aver-
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 3



ight (Round no.): 2 Room: 5 Stage: 3 Problem no.: 5

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena.
 application of appropriate mathematics.
 reasonable experimental technique to gother and record data (or demonstrate the phenomena is appropriate).
 linking of theoretical and experimental findings to draw suitable conclusions.
 an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: China 5	Opp.: Bulgaria 5	Rev.: Kerya Nathan Antrobas 5		
Yanghe Lang +1	Physics ±3 +11/2	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
Scientific approach	Scientific approach	Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent		
☐ Appropriate models, conformity	the report			
of dimensions	☐ Relevance of the questions			
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and		
☐ Novelty of the report		archive your parties green		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer 5 after IOC feedback and approved by EC on 2011-11-03		

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Fight (Round no.): 2 Room: 5 Stage: 3 Problem no.: 5

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: <u>CN</u> 5	Opp.: 3U 5	Rev.: KE 5		
Physics ±3	Physics ±3	Physics ±3		
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1 0.5	Presentation ±1 +1	Presentation ±1 4		
☐ Clear and understandable	☑ Clear and understandable	Clear and understandable		
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1 +1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about		
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed		
 Appropriate models, conformity of dimensions 	the report Relevance of the questions			
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so me can scan it and fight assistant, so me can scan it and		
☐ Novelty of the report		archive your parties or		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer		



Round: ______ Room: _____ Fight Assistants: ______ Tamesok Chainakhun , Wanchgloem Poonsawat

1	ľ.	Stage 1		1	Stage 2		1	Stage 3			Stage 4	
Team Juror	Balgania	Kenga	China	Kenya Rep	China Opp	Bulgaria	China Rep	Bulgaria Opp	kenya Rev	Rep	Орр	Rev
Felicia Ullatad	6	3	7	2	7	B	7	6	3			
Worksom kundhikanjana	7	5	7	3	8	8	7	7	4			
Yel Yeo	7	4	7	3	y	y	5	5	5	0		
kim Freiman	6	2	7	3	þ	6	6	6	3			
Kent Hogan	6	3	7	2	Ь	A	6	7	5			
Knoong Joo Kim	6	3	8	2	5	7	6	7	7			
Acting Team Member	Simeon Stefanov	Kiong Zhuang	Kehan Lu	Iruga Manjau	Zhenyan Gong	Mitko Benkov	Gaanghe Lang	Nikolay Nikolov	Nathan Antrobus			
Rejected Problems	① Pach	and dar	K	(4) Cir	icial mus cle of li	ght						
Accepted Problem	S Suga	er and So	lt	9 Ho	ver craft		STA	vo balloc	ons			

Signature Fight Assistant: Nanchaloen Pensawit Double-checked with Scoring Guidelines by second Fight Assistant (signature): Tawesale

Scoring Guidelines Fight (Round no.): 2 Room: 6 Stage: 1 Problem no.: 12

A report should include:

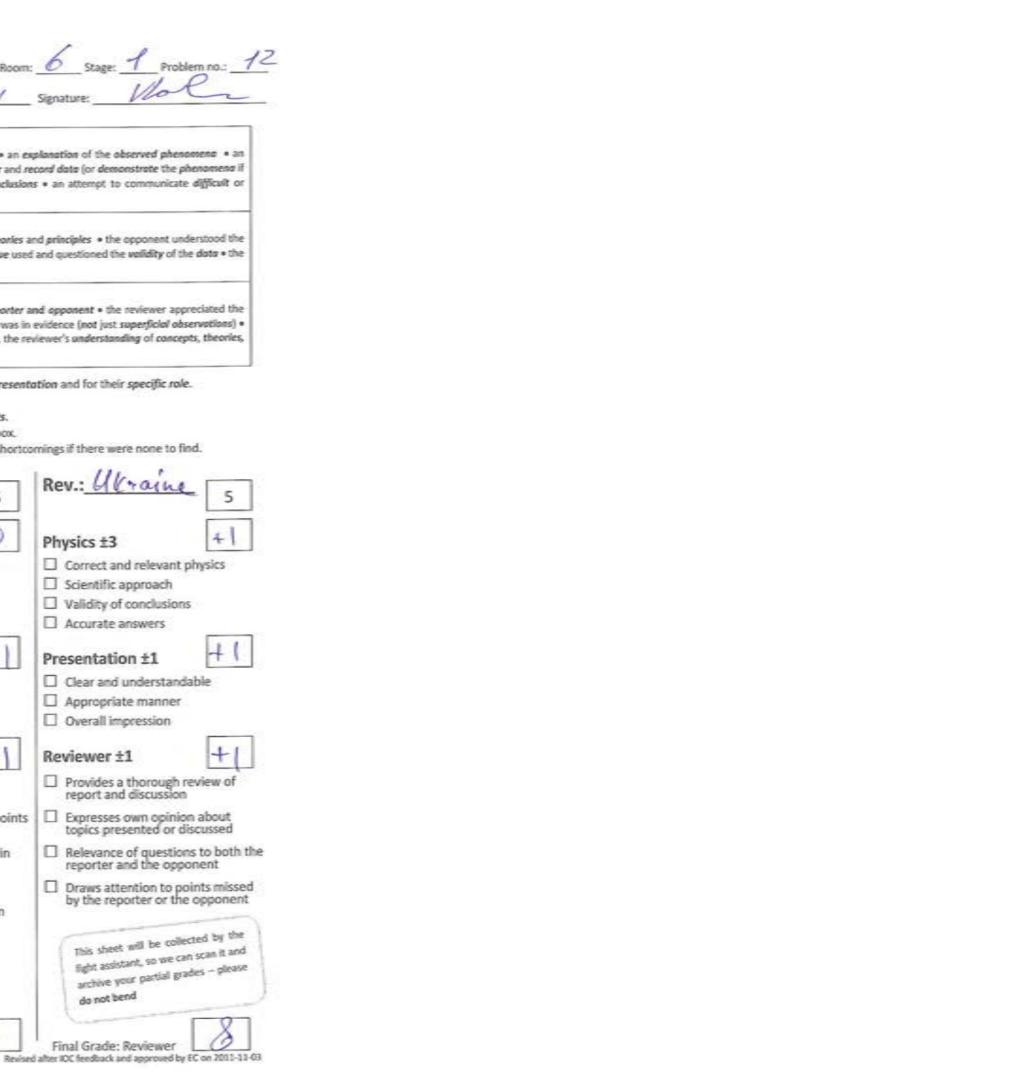
· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mothematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) + linking of theoretical and experimental findings to draw suitable conclusions + an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mothematics presented • the apparent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- . the reviewer succeeded in giving an objective summary of the performances the reporter and apparent . the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial abservations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Switz 5	Opp.: Sweden 5	Rev.: Ukraine 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 4	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	☐ Relevance of questions to both the
	the report	reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report	1	archive your parson b
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Fight (Round no.): 2 F	loom: F6 st	age: Problem no.:	12
wor Helmat Dunos	Signature:	ld	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demanstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

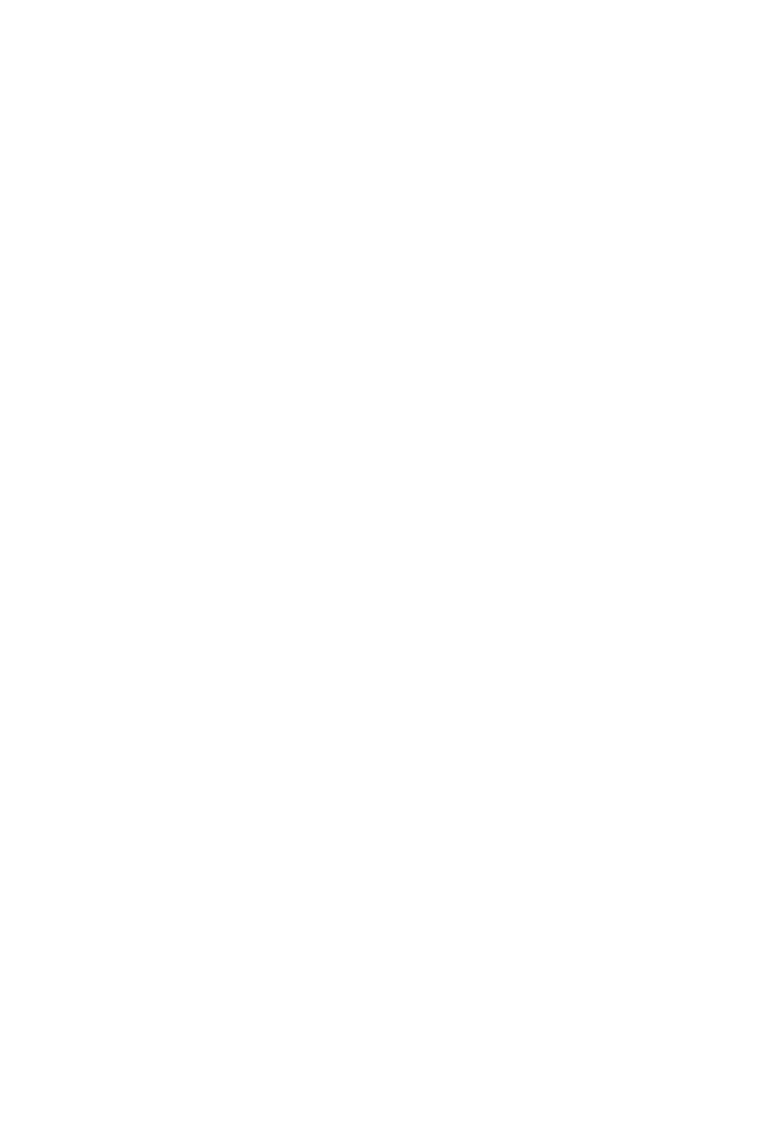
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

* the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) * such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Switzerland 5	Opp.: Sweden 5	Rev.: Okrajee 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
□ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +1	Presentation ±1 +0.5	Presentation ±1 +0.3
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☐ Overall impression
Reporter ±1 +0.5	Opponent ±1 †0.†	Reviewer ±1 +0.7
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial global
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer of after IOC feedback and approved by EC on 2011-11-03



ight (R	lound no.): _	2	Room:	b	Stage: 1	Pr	oblem no.: 12	Thick
							Hombuan	Laty

A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- · The grade for each of the three learns consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Switzerhand 5	Opp.: Sweden 5	Rev.: Ukraine 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
□ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 +0.5	Opponent ±1 +0.5	Reviewer ±1 -0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
■ Novelty of the report	1	archive your parties grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent	Final Grade: Reviewer safter IOC feedback and approved by EC on 2011-11-03



ight (Round no.): 2 Room: 6 Stage: Problem no.: 12

A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Simiss 5	Opp.: Sweden 5	Rev.: UKuire 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed		
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	☐ Relevance of questions to both th		
☐ Appropriate models, conformity	the report	reporter and the opponent		
of dimensions	☐ Relevance of the questions	Draws attention to points missed		
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and erades – please		
☐ Novelty of the report		archive your parson or		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03		



Fight (Round no.):	Room:	6	Stape:	1 Problem	nno:	2
Agent procure rough				1	1	
luror limoshchen	ko	Signati	ure:	de	X	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and apparent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the apponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Switzerland 5	Opp.: Sweden 5	Rev.: Ukraine 5	
Physics ±3	Physics ±3	Physics ±3 +2	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	Overall impression	☐ Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about	
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the	
☐ Appropriate models, conformity	the report	reporter and the opponent	
of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and erades - please	
☐ Novelty of the report		archive your partial grades	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer (after IOC feedback and approved by EC on 2011-11-03	



Fight (Round no.): 2 Room: 6 Stage: 1 Problem no.: 12

A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mothematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Swelzerland 5	Opp.: Sweder 5	Rev.: Ukrame 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1 +1	Presentation ±1 +0.5	Presentation ±1 +0.5	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	☐ Overall impression	☐ Overall impression	
Reporter ±1 † \	Opponent ±1 +0.5	Reviewer ±1 -0.5	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed Relevance of questions to both treporter and the opponent Draws attention to points misses by the reporter or the opponent	
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report		
 Appropriate models, conformity of dimensions 	Relevance of the questions		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		authine your parses &	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-0	



Scoring Guidelines	Fight (Round no.): 2 Room: 6 Stage: 2 Problem no.: 1 Juror: Loby Skev Signature: Whole
application of appropriate mathematics • reasonable	s and principles of the problem * an explanation of the observed phenomena * an experimental technique to gother and record data (or demonstrate the phenomena if tol findings to draw suitable conclusions * an attempt to communicate difficult or ner
An opposition should show that:	
	ing of the presented concepts, theories and principles • the opponent understood the ritiqued the experimental technique used and questioned the validity of the data • the and weaknesses of the report
A review should show that: • the reviewer succeeded in giving an objective sums	nory of the performances the reporter and opponent • the reviewer appreciated the

important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.

principles and appropriate mothematics used by the reporter and the apponent

· Select each partial grade from each section and write it in the corresponding box.

	questions were posed or not finding shortco	. 0 1	
Rep.: Sweden 5	Opp.: Ukraine 5	Rev.: <u>OW1 / 7</u> 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	☐ Overall impression	Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1 +	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent	
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		suchine April District Pro-	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer safter IDC feedback and approved by EC on 2011-11-03	



Fight (Round no.): 2	Room	F6	Stage:	2	Problem no.	10
suror: Helment Die					101	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Sweclen 5	Opp.: OKrane 5	Rev.: Suntantenal 5		
Physics ±3 + 1	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1 10.5	Presentation ±1 +4		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1 +0.7	Opponent ±1	Reviewer ±1 +4		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of guestions to both th		
☐ Appropriate models, conformity	the report Relevance of the questions	reporter and the opponent Draws attention to points missed		
of dimensions	Contribution to the discussion	by the reporter or the opponent		
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties grade		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IDC feedback and approved by EC on 2011-11-03		



Fight (Round no.): 2 Room: 6 Stage: 2 Problem no.: Blade
Juror: Surectat Homhuan signature: Surectat Homhuan.

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weeknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Sweden 5	Opp.: Ukrain 5	Rev.: Switzerland 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers .
Presentation ±1	Presentation ±1	Presentation ±1 +0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak po of the report	oints Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report		archive your parties grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-03



ight (F	Round no.): _	2	Room; _	6	Stage:	2_Pro	oblem no.: _	10
uror:	Chuen	rong	1:5	iignatu	re: C	hy	pli)

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the apponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Sweden 5	Opp.: Wrine 5	Rev.: Swiss 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☑ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	☐ Overall impression	☑ Overall impression	
Reporter ±1 -25	Opponent ±1	Reviewer ±1 0	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent.	
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions		
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant and people of the second scan it and fight assistant and second secon	
☐ Novelty of the report		archive your parcer a	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Salve IDC Seetback and accorded by EC on 2011-11-03	



ight (Round no.):	Room: _ &	Stage:	7 Problem	nno.: 10
ror. Timeshel	healto sien	ature:	alr	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal apinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Sween 5	Opp.: Ukrain 5	Rev.: 5475 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	☐ Overall impression	Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1	
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in	☐ Relevance of questions to both the	
☐ Appropriate models, conformity	the report	reporter and the opponent	
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial graves	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent Revised	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2013-11-03	



A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Swiden 5	Opp.: Ukrane 5	Rev.:		
Physics ±3 +0.5	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1 +05	Presentation ±1 -0.5	Presentation ±1 +1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1 +0.5	Opponent ±1 +4.5	Reviewer ±1 -0.5		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed		
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in			
Appropriate models, conformity of dimensions	the report Relevance of the questions			
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties to		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 7	Final Grade: Opponent	Final Grade: Reviewer 7		



Scoring G	iuidelines
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Fight (Round no.): 2 Room: 6 Stage: 3 Problem no.: 9

Juror: Lobys Rev Signature: 12

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mothematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the apponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Uraine 5	Opp.: Switz. 5	Rev.: Swedy 5		
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1		
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression		
Reporter ±1 0	Opponent ±1	Reviewer ±1		
technique(s) Structure Explanation of formulae and	solution Shows the strong and weak points of the report	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent		
symbols Appropriate models, conformity of dimensions	Finds shortcomings or errors in the report Relevance of the questions			
Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others	☐ Contribution to the discussion	This sheet with be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report ☐ Contribution to the discussion		fight assistant, so the Control archive your partial grades – please do not bend		
Final Grade: Reporter	Final Grade: Opponent Sevice	Final Grade: Reviewer safter IDC feedback and approved by EC on 2011-11-03		

Fight (Round no.):	2	Room:	F6	Stage:	3	Problem no.:	9	
wor: Helmad						la		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important ospects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Ukvaine 5	Opp.: Switzenland 5	Rev.: Sweden 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 -0.5	Presentation ±1 +0.3	Presentation ±1 + 1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 40-2	Opponent ±1	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
□ Novelty of the report		suchive April bastrar & april
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer Later IDC feedback and approved by EC on 2011-11-03

Hovercraft

Scoring Guidelines

Fight (Round no.): 2 Room: 6 Stage: 3 Problem no.:9

Juror: Surecrot Homhudisignature: Surecrot Homhugin.

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Ukraine 5	Opp.: Suitzerland 5	Rev.: Sweden - 5
Physics ±3	Physics ±3	Physics ±3 +2
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 46 5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1 +0.5	Reviewer ±1 +05
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about tooics presented or discussed
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer (after IDC feedback and approved by EC on 2011-11-03



ight (Round no.):	2 Room	6_	Stage:3	Problem no.:	4
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A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
opplication of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were pased or not finding shortcomings if there were none to find.

Rep.: Ukraine 5	Opp.: Swiss 5	Rev.: Sweeten 5
Physics ±3	Physics ±3	Physics ±3 +1
Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 0	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +15
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties of
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



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ight (Round no.):	Rooma	Stage:	Problem n	0.: _ /_
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A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * a
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult o
complex ideas in an effective and understandable manner

An opposition should show that:

the apponent challenged the reporter's understanding of the presented concepts, theories and principles * the apponent understood the
appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Ukrain 5	Opp.: Sw155 5	Rev.: Sweden 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +466
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer

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points missed the opponent	
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can scan it and grades – please	
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T by EC on 2011-11-03	

ight (Round no.): 2 Room: 6 Stage: 3 Problem no.: 7

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mothematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: UKraine 5	Opp.: Switzerland 5	Rev.: Sweden 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 +03	Opponent ±1 to .5	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6

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Round: _____ Room: ____ Fight Assistants:

		Stage 1			Stage 2			Stage 3			Stage 4	
Team Juror	Shitzerland Rep		Ukrame Rev	Sriedon Rep	Ukraine Opp	Snitzerland Rev	Ukraine (Rep	Snitzerland !	Sneden Rev	Rep	Орр	Rev
lat Neng Chan	q	Ь	5	7	5	7	Ь	Ь	b			
Igor Timoshchenko	Ь	6	7	5	7	7	5	5	7			
Chuan Yong Li	Ь	1	7	5	b	P	7 .	5	8			
Sureerat Homhuan	7	7	4	6	b	8	5	Ь	8			
Helmut Durrast	7	7	Ь	8	7	8.	5	Ь	7			
Valentin Lobusher	Ь	7	8	6	Ь	8	5	5	7			
Acting Team Member	Marc Bitherli	Ivar Erthsson.	Yevhen Melnyk	5	Mykyta Rohovyi	Kathrin Laxhuber	2aitseva Olha.	Michael Rogenman	Toomas Liiv			
Rejected Problems												
Accepted Problem		12			10			9				

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ight (Round no.): 2	Room: 7 Stage: 1 Problem no.: 4
uror: S By land	Signature: V. By

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena.
 application of appropriate mathematics.
 reasonable experimental technique to gother and record data (or demonstrate the phenomena is appropriate).
 linking of theoretical and experimental findings to draw suitable conclusions.
 an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * th
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal apinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Macao 5	Opp.: Slowlug 5	Rev.: Taluan 5
Physics ±3	Physics ±3 +1	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☑ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 / +½
☑ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☑ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and mades – please
☐ Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6 d after IOC feedback and approved by EC on 2011-11-09

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ght (Round no.): _	2	Room:	7	Stage:	Problem no.:	4 (liquid)
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Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Maeao 5	Opp.: Storakia 5	Rev.: Tairan 5
Physics ±3	- Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0.5	Presentation ±1	Presentation ±1 + D.S
☑ Clear and understandable	☐ Clear and understandable	☑ Clear and understandable
☑ Appropriate manner	☑ Appropriate manner	☑ Appropriate manner
☑ Overall impression	☑ Overall impression	☑ Overall impression
Reporter ±1 +0.5	Opponent ±1 +1	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both th
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, aud video, as appropriate		by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties go
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 7	Final Grade: Reviewer 6



ight (Round no.):	2	Room:	7	Stage:	Problem no.: _	4
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A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
approximate opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Macao 5	Opp.: Slovalia 5	Rev.: Taiwan 5
Physics ±3 -0,5	Physics ±3 +05	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 -0,6	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable —	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 +0,5	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed 4
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the reporter and the opponent +
Appropriate models, conformity of dimensions	the report + Relevance of the questions +	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grader
☐ Contribution to the discussion	4,500	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03



ht (Round no.):	II.	Room:	7	Stage:	I	Problem no.:	+
Or. PANIOSOVA	P'DA	SAHA	Sienati	une:	Par	e.	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * a
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult o
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find

Rep.: Meas 5	Opp.: Slopkia 5	Rev.: Taiwan 5
Physics ±3	Physics ±3	Physics ±3
[Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach		☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 -12	Presentation ±1 - 72	Presentation ±1 -1/2
☐ Clear and understandable	El Clear and understandable	☐ Clear and understandable
☑ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1 -1/2	Opponent ±1 +1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
El Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and
☐ Novelty of the report		archive your parcer e
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

	r a record	
	lanation of the observed phenon and data (or demonstrate the phe	
	an attempt to communicate in	
	d with dallary a thin annual and	ostand the
	d principles • the opponent unde and questioned the validity of the	
reporter an	d opposent • the reviewer appre	ciated the
ion was in e	rvidence (nat just superficial obse iewer's understanding of concept:	rvations) •
uic, the rev	cat: 3 assessmenty or correspon	, unconsu
E2 00000000		
s, presenta	tion and for their specific role.	
aints.		
ng box.		
	mings if there were none to fine	£.
	- T	
5	Rev.: Taiwaw	5
3		
.1	2	-1
1	Physics ±3	
cs	Correct and relevant pl	hysics
	☐ Scientific approach	
- 1	☐ Validity of conclusions	
	☐ Accurate answers	11.
172	D	-2/2
14	Presentation ±1	16
	Clear and understanda	ble
- 33	☐ Appropriate manner	
	Overall impression	
1	Reviewer ±1	+1
	1	
5	Provides a thorough re report and discussion	view of
k naiste	Expresses own opinion	about
k points	topics presented or dis	cussed
ors in	Relevance of questions	to both th
	reporter and the oppor	nent
S.	Draws attention to poi by the reporter or the	nts missed
sion	by the reporter or the	υμρυπεπι
		ed by the
	This sheet will be collect light assistant, so we can	scan it and
	night assistant, so we can archive your partial grad	es – please
	do not bend	
	00 lbs	
7	Final Grade: Reviewer	7

Fight (Round no.): _	2_Room	:	Problem no.: _	+
luror: PETER	JENE!	Signature:	22	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the apparent challenged the reporter's understanding of the presented concepts, theories and principles * the apparent understood the
appropriate mathematics presented * the apparent critiqued the experimental technique used and questioned the validity of the data * the
apparent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the apponent.
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 paints.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: MACAO 5	Opp.: SLOVAKIA 5	Rev.: THWAN 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1 0	Presentation ±1 +4	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	☐ Overall impression	Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1 0	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the	
☐ Appropriate models, conformity	the report	reporter and the opponent Draws attention to points missed by the reporter or the opponent	
of dimensions	☐ Relevance of the questions		
☐ Slides, on-site experiments, audio video, as appropriate	o, Contribution to the discussion		
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial si	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer	

Fight (Round no.):	2_1	Room:	7	Stage:	1	Problem no.: 4
Juror: TATYANA	6.	6 !	Signatur	E:	70	5

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the absenced phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

	Rep.:		Opp.: SLOVAKIA	-[-]	Rev.: Man	- [-]
	XIE JINGYI	5	Mieoslav	5	YW - CHIEH	5
	Physics ±3	+0,5	Physics ±3	40,5	Physics ±3	+4
	☐ Correct and relevant ph	ysics		hysics 10.25	M Correct and relevant	physics 40/15
+025	Scientific approach		☐ Scientific approach			
	☐ Validity of conclusions		M Validity of conclusions	10,25	☐ Validity of conclusions	5
10/2	² Accurate answers		☐ Accurate answers		☐ Accurate answers	<u> </u>
	Presentation ±1	-0,25	Presentation ±1	0	Presentation ±1	10,10
- 0,2	☐ Clear and understandal	ole	Clear and understanda	ble	☐ Clear and understand	able +0.25
	☐ Appropriate manner		☐ Appropriate manner		M Appropriate manner	
	☐ Overall impression		☐ Overall impression	-	☐ Overall impression	
	Reporter ±1	-0.26	Opponent ±1	+0,5	Reviewer ±1	+035
40.8°	Quality of experimental technique(s)		Response to the report solution	ter's	Provides a thorough r report and discussion	eview of a 0,15
	Structure		Shows the strong and of the report	weak points	Expresses own opinio topics presented or di	n about
0,2	 Explanation of formulae symbols 	e and	☐ Finds shortcomings or	errors in	M Relevance of question	s to both the +3.1
0	Appropriate models, co	nformity	the report Relevance of the quest	Sons	reporter and the opportunity Draws attention to po	
3	Slides, on-site experime video, as appropriate	ents, audio	☐ Contribution to the dis	cussion	by the reporter or the	opponent
ō.	References, proper cita ideas and input of other	tions of	aning that process as the	* Jn	This sheet will be colled light assistant, so we can	cted by the n scan it and
)·	☐ Novelty of the report		0 = 1		anchive your parties gro	565 - param
ō	☐ Contribution to the disc	oussion			do not bend	
	Final Grade: Reporter	5	Final Grade: Opponent	6 Revised	Final Grade: Reviewer after IOC feedback and approved by	7 EC on 2001-11-03

ight (Round no.): _	2	Room:	7 Sta	ge: _2	Problem	no.: 9
uror: S 39	land	Sig	nature: _	6.	340)

A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed ph application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communic complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles . the opponent appropriate mathematics presented • the apparent critiqued the experimental technique used and questioned the validity of opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer Important aspects (especially the controversial ones) + the reviewer's personal opinion was in evidence (not just superficial such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of conprinciples and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific re
- · The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to

Rep.: Storvalina 5	Opp.: Tainsan 5	Rev.: Macan 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☑ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 + 1/4	Presentation ±1	Presentation ±1
☑ Clear and understandable	☑ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	□ Overall impression	○ Overall impression ○ Overall im
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
Novelty of the report		archive your parus a
🖸 Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Room:	:_7_Stage:_2_Problem no.:_9_
	Signature: (.34)
and re	eplanation of the observed phenomena • an econd data (or demonstrate the phenomena if as • an attempt to communicate difficult or
	and principles • the opponent understood the data • the
was in	and opponent • the reviewer appreciated the evidence (not just superficial observations) • sviewer's understanding of concepts, theories,
resento	notion and for their specific role.
s. ox. hortco	omings if there were none to find.
	Rev.: Macan 5
	Physics ±3
	Correct and relevant physics Scientific approach Validity of conclusions
7	□ Accurate answers Presentation ±1 -1/4
1	☐ Clear and understandable ☐ Appropriate manner
	○ Overall impression
	Reviewer ±1
	Provides a thorough review of report and discussion
oints	topics presented or discussed
in	Relevance of questions to both the reporter and the opponent
1	Draws attention to points missed by the reporter or the opponent
	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please
_,	do not bend
	Final Grade: Reviewer d after IOC feedback and approved by IC on 2011-11-03

ight (Round no.):	2	Room:	7	Stage:	2	Problem no : 9 (Hover)
unr-Pormat W							

A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed pher application of appropriate mothematics + reasonable experimental technique to gother and record data (or demonstrate the p appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicat complex ideas in an effective and understandable manner

An opposition should show that:

 the apparent challenged the reporter's understanding of the presented concepts, theories and principles . the apparent un appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of ti opponent appreciated and highlighted the strengths and weaknesses of the report

- . the reviewer succeeded in giving an objective summary of the performances the reporter and opponent . the reviewer app important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial ob such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of conce principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific rol
- · The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to

Rep.: Sbrakia 5	Opp.: Taiwan 5	Rev.: Macao 5
Physics ±3	Physics ±3 + 0. 5	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 + 0.5	Presentation ±1 +0.5	Presentation ±1 +0.5
☑ Clear and understandable	Clear and understandable	☑ Clear and understandable
☑ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☑ Overall impression	☑ Overall impression	☑ Overall impression
Reporter ±1 +0.5	Opponent ±1 +)	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of guestions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
☐ References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and.
☐ Novelty of the report		anthine your parus or
Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent 7	Final Grade: Reviewer

Room:	7 Stage: 2 Problem no.: 9(H	ner)	
akasi	7 Stage: 2 Problem no.: 9(H		
	nionation of the observed phenomena • an cord data (or demonstrate the phenomena if		
	an attempt to communicate difficult or		
	d principles • the opponent understood the and questioned the validity of the data • the		
	E7 83 80 ******		
was in e	od opponent • the reviewer appreciated the evidence (not just superficial observations) •		
the rev	iewer's understanding of concepts, theories,		
	the and for their conflicts		
esento	tion and for their specific role.		
s.			
	mings if there were none to find.		
	Rev.: Macao		
1	5		
. 5			
2	Physics ±3 Correct and relevant physics		
	☐ Correct and relevant physics ☐ Scientific approach		
	☐ Validity of conclusions		
	☐ Accurate answers		
.5	Presentation ±1 +0.5		
	Clear and understandable		
	☐ Appropriate manner ☐ Overall impression		
	Reviewer ±1 +0.5		
	Provides a thorough review of report and discussion		
oints	Expresses own opinion about topics presented or discussed		
in	Relevance of questions to both the reporter and the opponent		
	☐ Draws attention to points missed		
n	by the reporter or the opponent		
	This sheet will be collected by the		
	This sheet will be concern fight assistant, so we can scan it and archive your partial grades – please		
	archive your parties or to do not bend		
\neg			
3			
	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03		

Fight (Round no.): 2 Room: 7 Stage: 2 Problem no.: 9

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal apinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Slovelia 5	Opp.: Taiwa 5	Rev.: Macao 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 0	Presentation ±1 0	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 O	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent 5	Final Grade: Reviewer 3 safter IOC feedback and approved by EC on 2011-11-03



ight (Round no.): 1	Room:	7	Stage: J.	Problem no.:	9
Paulocona' sac			- 4	7	

A report should include:

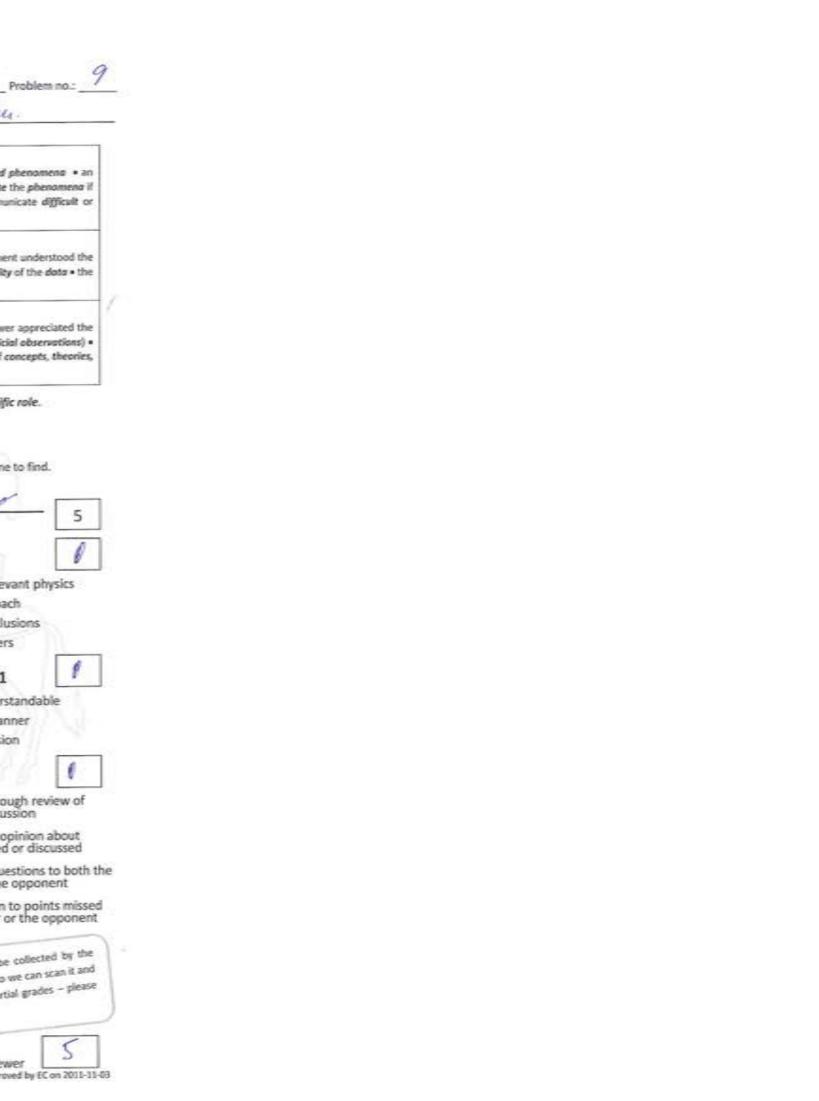
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summony of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, appanent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Slovakia 5	Opp.: Taiwan 5	Rev.: // s
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ ,Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 +1/2	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
₩ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the
☐ Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐, Novelty of the report		arthive your parusi gran
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Fight (Round no.):	2 Room	- 7 Stage:	2_ Problem no.:	9
Juror: PETEIZ	JENEI	Signature:	22	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the appropriate concepts, theories and principles of the problem.
 an explanation of the appropriate mathematics.
 reasonable experimental technique to gother and record data (or demonstrate the phenomena is appropriate).
 linking of theoretical and experimental findings to draw suitable conclusions.
 an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find

Rep.: SLOVAKIA 5	Opp.: THU WAV 5	Rev.: MACAO 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	☐ Overall impression	☐ Overall impression	
Reporter ±1 0	Opponent ±1	Reviewer ±1 0	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both th reporter and the opponent Draws attention to points missed	
 Appropriate models, conformity of dimensions 	the report Relevance of the questions		
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		arthive your partial grand	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer	

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by EC on 2011-11-03			

Fight (Round no.): 2	_Room:	7	Stage:	2	Problem no.: 9
luror: TATY ANA	6.5	Signatu	re:	05	>

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important ospects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: SLOVANIA 5	Opp.: TRIWAN 5	Rev.: MACAO
Edward	Manag-Tai, Chio	ckes less In 5
Physics ±3 + 2	Physics ±3	Physics ±3 +QS
Gorrect and relevant physics	☑ Correct and relevant physics	Correct and relevant physics +0,15
0.75 Scientific approach	☑ Scientific approach	☑ Scientific approach +0.25
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 -0/5	Presentation ±1 0	Presentation ±1
☑ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
The Assessment All weekers	☐ Appropriate manner	Appropriate manner machine washing
Overall impression	☐ Overall impression	Overall impression
Reporter ±1 -as	Opponent ±1	Reviewer ±1
0.15 🔯 Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report _ 0,1<	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity	the report _0,25	Draws attention to points missed
of dimensions		by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parcer by
☐ Contribution to the discussion	S-1-1-1-1	do not bend
Final Grade: Reporter 6	Final Grade: Opponent 5	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03

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Fight (Round no.):	2	Rooms	7	Stage	: 3	Problem no.:	7
uror: 5.31	land		Signati	ire:	30	1	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Taiwas	Opp.: Nacao 5	Rev.: Stovakis 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	⊞ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1 41/2	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	□ Overall impression	☐ Overall impression	
Reporter ±1	Opponent ±1 -½	Reviewer ±1 44	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☑ Structure	Shows the strong and weak point	ts Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	El Finds shortcomings or errors in	☐ Relevance of guestions to both the	
Appropriate models, conform	mity the report	reporter and the opponent	
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
Slides, on-site experiments, video, as appropriate	audio, Contribution to the discussion		
References, proper citations ideas and input of others	of	This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
□ Novelty of the report		archive your parcea a	
Contribution to the discussion	in	do not bend	
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer	



ight (Round no.):	2	Room:	2	Stage: 3	Problem no.:	7 (Shooted
Bennet W	tton	akasin	ich.	L.	2-	pole)

A report should include:

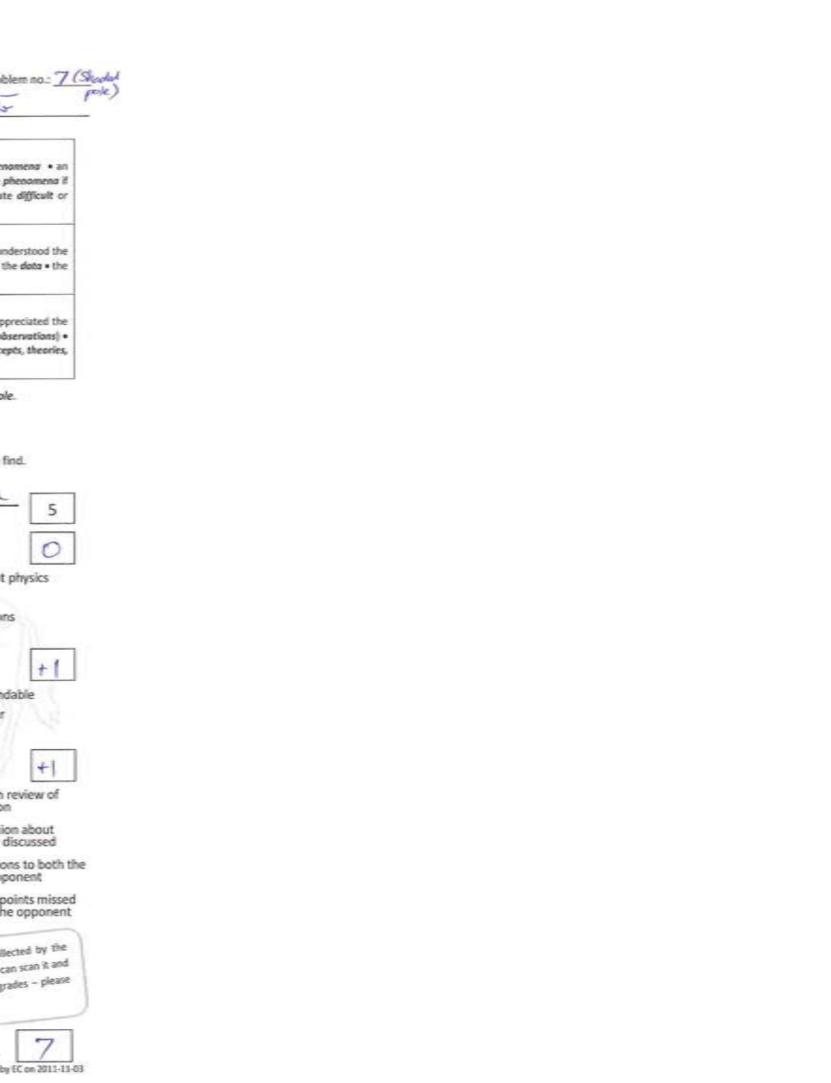
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mothematics used by the reporter and the opponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Taiwan 5	Opp.: Macao 5	Rev.: Slovakia 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1 +1	Presentation ±1	Presentation ±1 + 1		
☑ Clear and understandable	☑ Clear and understandable	(2) Clear and understandable		
Appropriate manner	☑ Appropriate manner	G' Appropriate manner		
Overall impression	☐ Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1 / +		
☑ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both reporter and the opponent		
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your partial great		
Contribution to the discussion		do not bend		
Final Grade: Reporter 7	Final Grade: Opponent 5	Final Grade: Reviewer Later IOC feedback and approved by EC on 2011-11-0		



Fight (Round no.): 2 Room: 7 Stage: 3 Problem no.: 7

Juror: Maltin Alaskano Signature: M.A.

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Taiwa 5	Opp.: Hugo 5	Rev.: Slovelia 5		
Physics ±3	Physics ±3	Physics ±3 +		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	☐ Overall impression	Overall impression		
Reporter ±1 0	Opponent ±1	Reviewer ±1 0		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points ☐ Expresses own opinion a topics presented or discu			
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of guestions to both the		
☐ Appropriate models, conformity	the report	reporter and the opponent		
of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio video, as appropriate	, Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your partial graves		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer 6		

ght (Round no.):	1	Room:	7.	Stage:	W.	Problem no.:	7.	
HOP: PANDSEW					Pa			

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mothernatics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Thinas 5	Opp.: Micao 5	Rev.: Strabia 5		
Physics ±3	Physics ±3	Physics ±3 + 1		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☑ Clear and understandable	☑ Clear and understandable	☐ Clear and understandable		
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	☐ Overall impression	Overall impression		
Reporter ±1 +1/2	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in the report	Relevance of questions to both th reporter and the opponent Draws attention to points missed by the reporter or the opponent		
Appropriate models, conformity of dimensions	Relevance of the questions			
Slides, on-site experiments, audio, <u>yide</u> o, as appropriate	☐ Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
Novelty of the report		suchive your paroas o		
Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer 7		

ight (Round no.):	2_F	loom: _	7	Stage: _	3	Problem no.:	7
WOOT PETER	JENE	Sig	gnatun	e:	1	1	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and apponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: TAIWAN 5	Opp.: MA CA 0 5	Rev.: SLOVAKIA 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	Overall impression	Overall impression		
Reporter ±1 0	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent		
Appropriate models, conformity of dimensions	the report Relevance of the questions			
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion			
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties are		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Tafter IOC feesback and approved by EC on 2011-11-03		

ight (Round no.): _	2	Room:	7	Stage:	3	Problem no.:	7
ITOT TATVANA					-		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

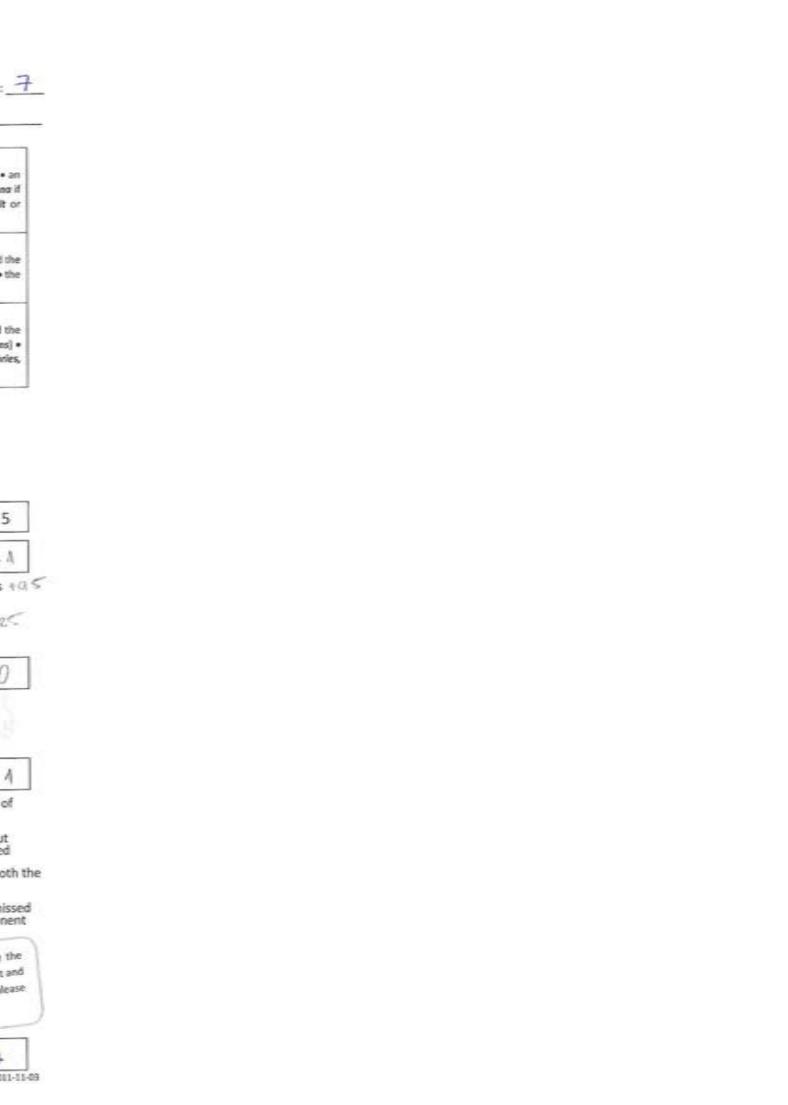
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Thiward 5	Opp.: macao 5	Rev.: SLOVAKIA 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☑ Correct and relevant physics +0.5
26 Scientific approach	☐ Scientific approach	Scientific approach
	☐ Validity of conclusions	☐ Validity of conclusions 40,25
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1 0	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 4 0,1%	Opponent ±1	Reviewer ±1 + 4
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties so
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer



Round: Room: ...

. Fight Assistants:...

na Supenek

	Ĩ	Stage 1			Stage 2			Stage 3			Stage 4		
Team	Macau	Slovakia	Taiwan	Slovakia	Taiwan	Macau	Taiwan	Macau	Slovakia	UL.			
uror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Opp	Rev	
Samuel Byland	4	6	6	7	5	4	5	4	7				
Berneat Wattanakasiwich	Б	7	6	7	7	6	7	5	7				
Mattias Anderson	4	6	7	7	5	3	5	5	6				
Dagmar Panosava	4	7	7	ь	5	Б	4	4	7				
Pater Jenei	5	8	7	8	6	4	4	5	7				
Tatyana Gongalves Slonkevi	ius 5	G	7	6	5	5	5	5	7				
Acting Team Member	Xie Jingyi	Miroslav Gasparek	Yin-Chieh Cheng	Eduard Orav kin	Neng-Tai Chin	Chou How In	Hao yu Ku	Chou How In	Adam Urban				
Rejected Problems		-		b. Magna	s Glider		n. Cat's	uhisker					
Accepted Problem	4. Liquid	Film Motor		9. Hover	craft		7. Shad	ied Pole					

Signature Fight Assistant:...... Double-checked with Scoring Guidelines by second Fight Assistant (signature):

	Fight (Round no.): 2 Ro	om: 8 Stage: / Problem no.: 8
Scoring Guidelin	00	Signature: 110 Mill
_	100. 070 2702	Space 4/
application of appropriate mathematics • rea	sonable experimental technique to gother an perimental findings to draw suitable conclu	n explanation of the observed phenomena • and record data (or demonstrate the phenomena if sions • an attempt to communicate difficult or
	conent critiqued the experimental technique	es and principles • the opponent understood the sed and questioned the validity of the data • the
A review should show that:		
important aspects (especially the controversis	of ones) • the reviewer's personal opinion wa -trivial and demonstrated, where possible, th	er and opponent • the reviewer appreciated the s in evidence (not just superficial observations) • e reviewer's understanding of concepts, theories,
The reporter, opponent and reviewer expensions to a Consider the following suggestions to a Select each partial grade from each sect Don't punish missing 'answers' when no Rep.: 5	dd to or deduct from the initial 5 points. Ion and write it in the corresponding box	
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 & B + K2
Quality of experimental technique(s)	Response to the reporter's solution	 Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak poir	ts Expresses own opinion about
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both th
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	by the reporter or the opponent

Final Grade: Opponent

References, proper citations of ideas and input of others

☐ Contribution to the discussion

☐ Novelty of the report

Final Grade: Reporter

This sheet will be collected by the

Sight assistant, so we can scan it and archive your partial grades - please

do not bend

Final Grade: Reviewer
Revised after IOC feedback and approved by EC on 2011-11-03

Scoring Guidelines	Scoring	Guide	lines
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ight (Round no.): _	2 80	8# moo	Stage:\	Problem no : 8	(Sugartself
uror: Apich	deb	Signatu	ıre:	11/	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

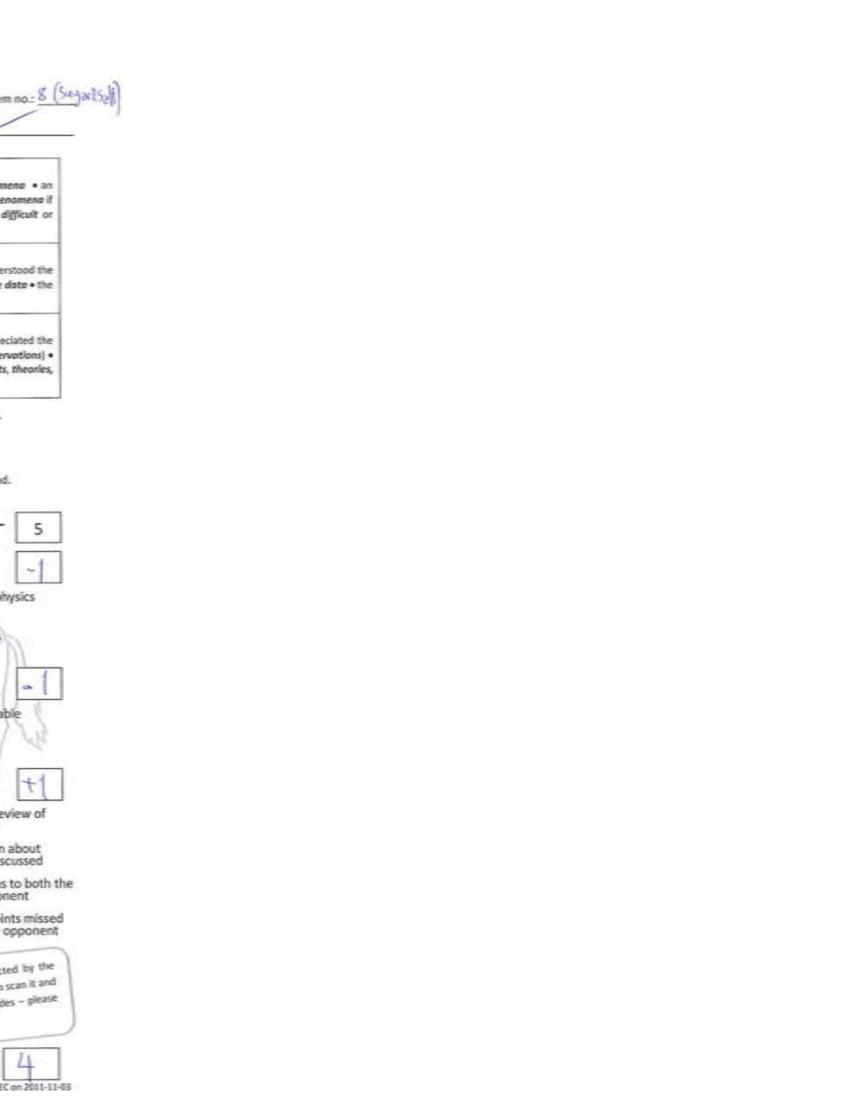
the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

Rep.: Fech Peg 5	Opp: Niceria 5	Rev.: Balanic 5
Physics ±3	Physics ±3 +1 W/G	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 6 +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		anchive your parties 6
☐ Contribution to the discussion		do not bend



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Fight {	Round no.):	2_Room	_ 8_st	age: _/	_ Problem no	: 8
luror:	HOHOSTRET	тина ст	Signature:	9	0-2	_

Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important ospects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- Select each partial grade from each section and write it in the corresponding box.

 Don't punish missing 'answers' when no 	questions were posed or not finding shortco	
Rep.: Cul Pip. 5	Opp.: Vyenc 5	Rev.: Adors 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 0	Presentation ±1 0
☐ Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and	of the report	topics presented or discussed
symbols	Finds shortcomings or errors in the report	Relevance of questions to both th reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
_		by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6



Scoring G	uide	lines

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A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * are application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena is appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apparent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to fin

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Rep.: lowas Domes 5	Opp.: Mup custone	Rev. thastasya
Crech.	Nigeria	Delarus Promazka
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
M Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner /
Overall impression	Overall impression	Overall impression
Reporter ±1 Quality of experimental technique(s)	Opponent ±1 [7] Response to the reporter's solution	Reviewer ±1 6 6. Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, videgpas appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and portal grades - please
☐ Novelty of the report		archive your parties of
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

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6 EC on 2011-11-03

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Scoring	Guidelines	Juron:

	0	Q	1		2
Fight (Round no.)		om: O_	Stage:	Problem no.:	0
Juror: Shich	etnika	V Signature	e NH	2	
			VV		

Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the apponent challenged the reporter's understanding of the presented concepts, theories and principles • the apponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial abservations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- Select each partial grade from each section and write it in the corresponding box.

. Don't punish missing 'ariswers' when no	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Czech 5	Opp.: Nigeria 5	Rev.: Belarus 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Clear and understandable Appropriate manner Overall impression	Clear and understandable Appropriate manner Overall impression
Reporter ±1 Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others Novelty of the report	Opponent ±1 + 0.5 Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions Contribution to the discussion	Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and archive your partial grades – please do not bend
Contribution to the discussion Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5



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Fight (R	lound no.): _	2	Room:	8	Sta	ge:_	Prob	ilem no.:	8
	Burin					_			

Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gother and record data for demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

· the opponent challenged the reporter's understanding of the presented concepts, theories and principles · the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- . the reviewer succeeded in giving an objective summary of the performances the reporter and opponent . the reviewer appreciated the Important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial abservations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.

 Select each partial grade from each sec 	tion and write it in the corresponding box.	
 Don't punish missing 'answers' when n 	o questions were posed or not finding shortco	mings if there were none to find.
Rep.: Town's Demes 5	Opp.: Philip Eludiade 5	Rev.: Montosiga Podenisho
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 A A
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio,		by the reporter or the opponent
video, as appropriate	_ CONTROLOR OF THE VISCOSOR	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		arthive your partial by
Contribution to the discussion	100	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5



Scoring Guidelines	Fight (Round no.): 2		Stage: 2 Problem no:
A report should include: • a presentation of the appropriate concepts, theorie application of appropriate mathematics • reasonable appropriate) • linking of theoretical and experiment complex ideas in an effective and understandable man	experimental technique to gothe tal findings to draw suitable co	er and record doto	or demonstrate the phenomena i

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.

Don't punish missing answers when no	questions were posed or not finding shortco	and the same and the same
Rep.: NILERIA 5	Opp.: BELARVS 5	Rev.: 5246H 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner / \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 6
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report		archive your parver by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent 5	Final Grade: Reviewer d after IDC feedback and approved by EC on 2011-11-



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Fight (Round no.):	2 Room	# 6 Sta	gė:	Problem no.: 9	(Howard)
suror: Apich	art	Signature:	(0)	4	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the apponent challenged the reporter's understanding of the presented concepts, theories and principles * the apponent understood the
appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

Rep.: Vigeria 5	Opp.: Bolands 5	Rev.: Cteth Len 5
(Philip)	MDanii) Tay !	(PETP)
Physics ±3 -1.0	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 -0.5	Presentation ±1	Presentation ±1 0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 -0.5	Opponent ±1	Reviewer ±1 0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and	of the report	
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial by
		do not bend



Fight (Round no.):	Room:	#8 SE	age: 18	Problem no.:	9
Junor: HOMOSTREST	WHICH	Signature:	gi	-	8

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate data * the opponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Mysin 5	Opp.: 3	Rev.: Gal Rep 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Reporter ±1 ☐ - 1/5	Clear and understandable Appropriate manner Overall impression Opponent ±1	Clear and understandable Appropriate manner Overall impression Reviewer ±1
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and	Response to the reporter's solution Shows the strong and weak points of the report	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed
symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	☐ Finds shortcomings or errors in the report ☐ Relevance of the questions ☐ Contribution to the discussion	Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
☐ References, proper citations of ideas and input of others ☐ Novelty of the report ☐ Contribution to the discussion		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer Tafter IOC feedback and approved by EC on 2011-11-03



Scoring Guidelines	Fight (Round no.): 2 Room Juror: 1009 - Yuan Hsu	signature: Yarg-Juan Asi
A report should include:	N 100 TO	

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

 Don't punish missing 'answers' when no 	questions were pased or not finding shortco	mangs at there were none to and.		
Rep. Philip. Elushade 5	Opp. Daniel Yarmakentch	Rev.: Peter. Sosnor 5		
Physics ±3	Physics ±3 +0.5.	Physics ±3		
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1 +0.3	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐, Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner		
☐ Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, would grades - please		
☐ Novelty of the report		archive your parus a		
Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6 after IOC feedback and approved by EC on 2011-11-03		

Fight (Round no.): 2 Room: 8 Stage: 2 Problem no.: 9

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena.
 application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate).
 Inking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * th
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Nigeria 5	Opp.: Belarus 5	Rev.: Czech 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	Scientific approach	Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 -0,5
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 -0.5 Quality of experimental technique(s)	Opponent ±1 +0.5	Reviewer ±1 -0.5 Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and
☐ Novelty of the report		archive your partial groots
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03

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Fight (Ro	und no.]: 2	_Room: _ 8	Stage:	2	_ Problem no.:	9_
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A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important ospects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

Rep.: Philip 5	Opp.: Daniel 5	Rev.: Petr 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grant
☐ Contribution to the discussion		da not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Latter IOC feedback and approved by EC on 2011-11-03



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ight (Ro	ound no.]: _	2	Room:	3	_ Stage:	3	Problem no.: 14	
uror: _	O'NEI	ec	3	Signati	ine:	P	SOMEU	

Revised after IOC feedback and approved by FC on 2011-11-03

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena.
 an opplication of appropriate mathematics.
 reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate).
 linking of theoretical and experimental findings to draw suitable conclusions.
 an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: BILARUS 5	Opp.: CZECH 5	Rev.: NIGERIA 5
Physics ±3	Physics ±3	Physics ±3 /2
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☑ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the guestions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and metal grades - please
Novelty of the report		archive your parcer e
☐ Contribution to the discussion		do not bend
6	Sinal Grader Opposes 7	Sinal Grade: Reviewer

ight (Round no.): 2 Room: #5 Stage: Problem no.: 14 (Chr.) of light

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * a
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult o
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial abservations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, apponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Balarys 5	(Parla)	Rev.: Nigena 5
Physics ±3 +1	Physics ±3 -0.5	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0.5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1 0.5	Opponent ±1 +1	Reviewer ±1 +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report.	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties green
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5

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Fight (Round no.): 2 Room: 8 Stage: 3 Problem no.: 11

Auror: Hokiostica, Hilley Signature: 11

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * a
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult o
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Rep.: 5	Opp.: fed fyllie 5	Rev.: Miguia 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1 +4	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	Overall impression	☐ Overall impression	
Reporter ±1 +0,5	Opponent ±1	Reviewer ±1 0	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
Explanation of formulae and symbols	Finds shortcomings or errors in	☐ Relevance of guestions to both the	
☐ Appropriate models, conformity	the report	reporter and the opponent	
of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		archive your parties grant	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 7	Final Grade: Opponent 6	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03	

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Scoring Guidelines	Fight (Round no.): 2 Room: 8 Stage: 3. Problem no.: 14. Juror: Ywrg-Ywan Hsu signature: Yeng-Yman Hsu
	s and principles of the problem • an explanation of the observed phenomena • an experimental technique to gother and record data (or demonstrate the phenomena if

a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the abserved phenomena.
 application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena appropriate).
 Inking of theoretical and experimental findings to draw suitable conclusions.
 an attempt to communicate difficult or complex ideas in an effective and understandable manner.

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to odd to or deduct from the initial 5 points.
- . Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find

Rep.: Verontes Toka	Opp.: Paula Béresava.	Rev.: Reperca Banjos
Belans	Crech	Nigeria.
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 0.
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 1/3
Quality of experimental technique(s) Solffragtion	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure interference	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both th
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
 Slides, on-site experiments, audio video, as appropriate 	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grand
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Faher IOC feedback and approved by EC on 2001-11-0

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ight (Round no.): 2 Room: 8 stage: 3 Problem no.: _____ iror: ShcheTulkoV signature: _____

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Belarus 5	Opp.: Czech 5	Rev.: Nigeria 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 + 1.5	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1
Clear and understandable Appropriate manner Overall impression Reporter ±1	Opponent ±1	Clear and understandable +0.5 Appropriate manner Overall impression Reviewer ±1 -0.5
Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions Contribution to the discussion	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others Novelty of the report Contribution to the discussion	7	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend
Final Grade: Reporter	Final Grade: Opponent Revise	Final Grade: Reviewer



ight (Rou	ind no.): 2	Room:	8	Stage		3	_ Problem no.:	19
	Burin	5			_			

A report should include:

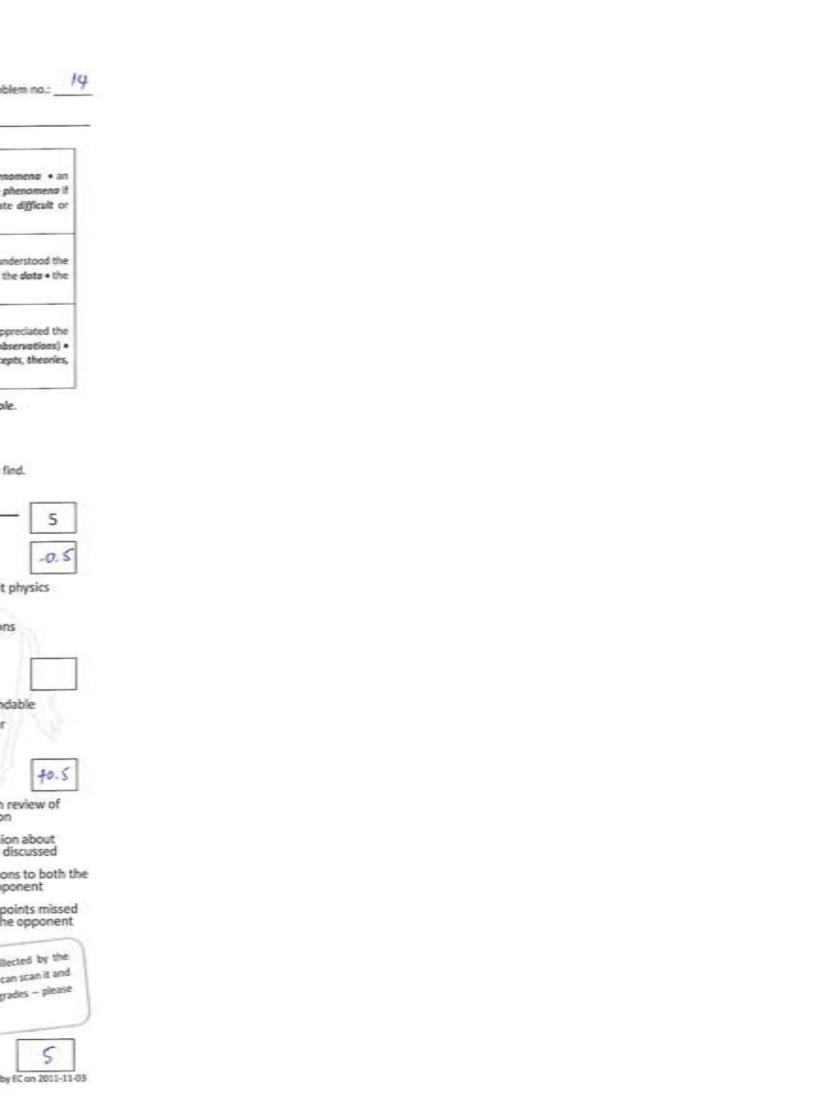
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demanstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Veronika 5	Opp.: fayla 5	Rev.: Robeca 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1 1	Opponent ±1	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parson by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent 5	Final Grade: Reviewer



Round: Room: 8 Fight Assistants: Something & Joseph

		Stage 1		ſ	Stage 2			Stage 3			Stage 4	
Team Juror	Czech Replic Rep		Rev	Nigeria Rep	Belates Opp	Geeh Republic	Nep Rep	Gerch Republic Opp	Niger in Rev	Rep	Орр	Rev
Philip O'Neil (chair)	5	4	6	3	5	6	8	7	6			
Apichat Pattampakutana	4	4	4	3	6	7	7	6	5			
Mihaly Homostra	4	Б	6	4	4	4	Y	6	5			
Yong-Yunn HEU	2	7	Ь	4	5	6	6	5	5			
Andrey Shchetnikov	4	5	5	3	5	4	8	7	5			
Burin Asavapibhop	4	4	6	4	4	り	7	5	万			
Acting Team Member	Toma's Domes.	Philip Etyshade.	Anastasiya Podnázko	Philip Elushade	Daniel Yarmad kevich.	Potr Sarma	Veronika Bleareva.	Paula Beresova	Rebecca Banjo			
Rejected Problems	(4) (2)											
Accepted Problem	(8)			(17			(14)					

Scoring Guidelines A report should include: · a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner An opposition should show that: . the apponent challenged the reporter's understanding of the presented concepts, theories and principles. the apponent understanding the

appropriate mathematics presented • the apparent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial abservations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent.
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

Rep.: Kopea 5	Opp.: Pussia Udoli Mahuin 5	Rev.: Hungary 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
Clear and understandable	Clear and understandable	☐ Clear and understandable		
Appropriate manner	Appropriate manner	Appropriate manner		
Overall impression	Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1 6 0		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the		
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties to		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer 5 d after IOC feedback and approved by EC on 2011-11-0		



ight (Round no.): 2	Room:	9	_Stage: _	1_Pr	oblem no.:	15
SUZ MARIE						

A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the apparent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

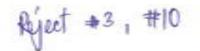
A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.

Rep.: Se bearn	opp,: V + 2 1	Rev. Abel
Lee 5	Metuno 5	Beregi 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable \	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
(4) (6)		Total a sufficient
Reporter ±1	Opponent ±1	Reviewer ±1 4 4
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and		☐ Relevance of questions to both th
symbols Poor	Finds shortcomings or errors in the report	reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio,	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and enades - please
☐ Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend





Fight (Round no.):	9	Room:	61200	Problem no.:	19
right (wound no.):	-	HDORE.	1 Stage.	1.0 Problem no	
Nanum	-	e:	N	X	

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the abserved phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented
 the opponent critiqued the experimental technique used and questioned the validity of the data
 the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important ospects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

Rep.: Korea 5	Opp.: Musia 5	Rev.: Hurry 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 +1	Opponent ±1	Reviewer ±1 8 8 10.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	Relevance of questions to both the
	the report	reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties by
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer I after IOC feedback and approved by EC on 2011-11-09



Rajected: #3, #10

A report should include:

Scoring Guidelines

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . Inking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner An opposition should show that: · the opponent challenged the reporter's understanding of the presented concepts, theories and principles · the opponent understood the appropriate mathematics presented • the apparent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report A review should show that: the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal apinion was in evidence (not just superficial abservations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mothematics used by the reporter and the apponent. The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific rale. The reporter, opponent and reviewer each start with 5 points. Consider the following suggestions to add to or deduct from the initial 5 points. Select each partial grade from each section and write it in the corresponding box. · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. Rev .: Hungary Opp.: Kussia Physics ±3 Physics ±3 Physics ±3 Correct and relevant physics □ Correct and relevant physics Correct and relevant physics ☐ Scientific approach ☐ Scientific approach ☐ Scientific approach ☐ Validity of conclusions □ Validity of conclusions ☐ Validity of conclusions Accurate answers ☐ Accurate answers ☐ Accurate answers 0 Presentation ±1 Presentation ±1 Presentation ±1 M Clear and understandable ☐ Clear and understandable ☐ Clear and understandable Appropriate manner ☐ Appropriate manner Appropriate manner Overall impression Overall impression □ Overall impression 0 0 Opponent ±1 Reviewer ±1 Reporter ±1 Response to the reporter's Provides a thorough review of Quality of experimental report and discussion solution technique(s) Shows the strong and weak points ☐ Structure Expresses own opinion about topics presented or discussed of the report ☐ Explanation of formulae and Relevance of questions to both the ☐ Finds shortcomings or errors in symbols reporter and the opponent the report ☐ Appropriate models, conformity □ Relevance of the questions Draws attention to points missed of dimensions by the reporter or the opponent Contribution to the discussion ☐ Slides, on-site experiments, audio, video, as appropriate This sheet will be collected by the References, proper citations of fight assistant, so we can scan it and ideas and input of others archive your partial grades - please ■ Novelty of the report do not bend Contribution to the discussion Final Grade: Opponent Final Grade: Reviewer Final Grade: Reporter

Fight (Round no.): 2 Room: 9 Stage: 1 Problem no.: 15

Revised after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelines A report should include: a presentation of the appropriate concepts, theories and principles of the problem. an explanation of the observed phenomena. application of appropriate mothematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner An opposition should show that: the opponent challenged the reporter's understanding of the presented concepts, theories and principles the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report A review should show that: the reviewer succeeded in giving an abjective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role. · The reporter, opponent and reviewer each start with 5 points. Consider the following suggestions to add to or deduct from the initial 5 points. Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. usus 5 Physics ±3 Physics ±3 Physics ±3 ☐ Correct and relevant physics Correct and relevant physics Correct and relevant physics ☐ Scientific approach ☐ Scientific approach Scientific approach ☐ Validity of conclusions ■ Validity of conclusions □ Validity of conclusions Accurate answers Accurate answers ☐ Accurate answers Presentation ±1 Presentation ±1 Presentation ±1 ☐ Clear and understandable ☐ Clear and understandable ☐ Clear and understandable □ Appropriate manner ☐ Appropriate manner ☐ Appropriate manner Overall impression Overall impression ☐ Overall impression Opponent ±1 Reviewer ±1 Reporter ±1 Response to the reporter's Provides a thorough review of Quality of experimental report and discussion technique(s) ☐ Expresses own opinion about Shows the strong and weak points ☐ Structure topics presented or discussed of the report ☐ Explanation of formulae and Relevance of questions to both the reporter and the opponent ☐ Finds shortcomings or errors in symbols the report Appropriate models, conformity Draws attention to points missed ☐ Relevance of the questions of dimensions by the reporter or the opponent ☐ Contribution to the discussion ☐ Slides, on-site experiments, audio, video, as appropriate This sheet will be collected by the fight assistant, so we can scan it and References, proper citations of ideas and input of others archive your partial grades - please ■ Novelty of the report do not bend ☐ Contribution to the discussion

Final Grade: Reporter

Final Grade: Reviewer

Revised after IOC feedback and approved by EC on 2011-11-03

Fight (Round no.): 2 Room: 9 Stage: 1 Problem no.: 8,19,15 Scoring Guidelines A report should include: · a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

· the apparent challenged the reporter's understanding of the presented cancepts, theories and principles · the apparent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

- . the reviewer succeeded in giving an objective summary of the performances the reporter and opponent . the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the apponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Vorsa 5	Opp.: Presia 5	Rev.: thuyang 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	Appropriate manner	Appropriate manner / \ \ \ \ \		
☐ Overall impression	Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent Draws attention to points missed		
 Appropriate models, conformity of dimensions 	Relevance of the questions			
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
☐ References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and		
☐ Novelty of the report		archive your partial grand		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer		

Revised after IOC feedback and approved by EC on 2011-11-03



Fight (Round no.): 2 Room	9 930	2	Problem no.:
		-	
JUTOT: LYNLYARTENEDINO	Signature:	/	ne

A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the apparent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

- * the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 points.

Deser		questions were posed or not	2	Korea		
Rep.: Vitulay	5	Opp.: Antro	- 5	Rev.: 1:00 K	itu 5	
Physics ±3	4-1	Physics ±3	-\	Physics ±3	+1	
☐ Correct and relevant ph	ysics	☐ Correct and relevant p	physics	☐ Correct and relevant	physics	
☐ Scientific approach		☐ Scientific approach	100	☐ Scientific approach		
☐ Validity of conclusions		☐ Validity of conclusions	5	☐ Validity of conclusion	ns	
☐ Accurate answers		☐ Accurate answers		☐ Accurate answers		
Presentation ±1	-1	Presentation ±1	D	Presentation ±1		
☐ Clear and understandab	ole	☐ Clear and understand	able	☐ Clear and understandable		
☐ Appropriate manner		☐ Appropriate manner		☐ Appropriate manner ☐ Overall impression		
☐ Overall impression		☐ Overall impression				
Reporter ±1	0	Opponent ±1	0	Reviewer ±1	+1	
Quality of experimental technique(s)		Response to the reporter's solution		Provides a thorough report and discussion	review of n	
☐ Structure		☐ Shows the strong and weak points		☐ Expresses own opini	on about	
☐ Explanation of formula	e and	of the report		topics presented or discussed		
symbols		Finds shortcomings or errors in the report		Relevance of questions to both th reporter and the opponent		
 Appropriate models, co of dimensions 	nformity	☐ Relevance of the questions		☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate		☐ Contribution to the d	scussion	by the reporter or the opponent		
References, proper citations of ideas and input of others				This sheet will be coll fight assistant, so use o	lected by the can scan it and	
DESCRIPTION OF THE PERSON OF T	☐ Novelty of the report			archive your partier s	rades - prouse	
_	cussion			do not bend		



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ight (Round no.):	2	Room:	9	Stage:	2	Problem no.:	5
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A report should include:

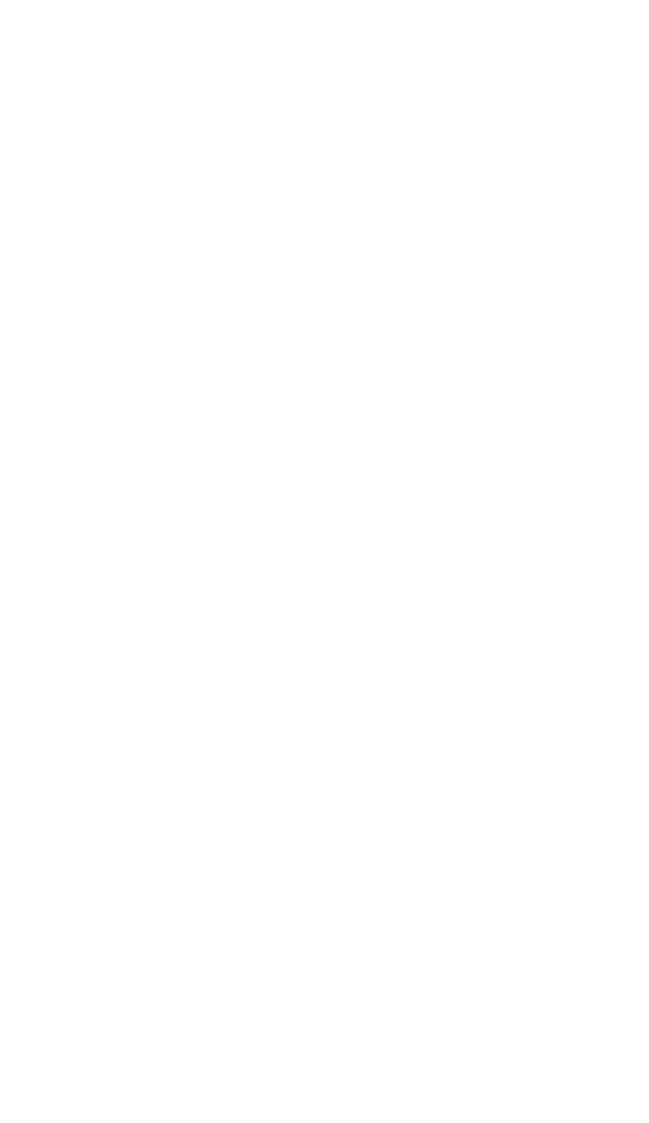
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted the strengths and weaknesses of the report.

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

Pussia	questions were pased or not finding shortco	Core o.
Sibiryakiy.	Opp.: Andres 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1 - ond O	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols 6 - 4 - 4 - 6	☐ Finds shortcomings or errors in	☐ Relevance of questions to both th
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
□ Novelty of the report		archive your parties by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5.	Final Grade: Opponent	Final Grade: Reviewer 5



ight (Round no	ale S	2	Room:	9	Stage:	2	Problem no.:	5	
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A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed ph application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communic complex ideas in an effective and understandable manner

An opposition should show that:

 the opponent challenged the reporter's understanding of the presented concepts, theories and principles . the opponent appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer and opponent *. important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of conprinciples and appropriate mathematics used by the reporter and the apponent
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific of
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to

Rep.: Russla 5	Opp.: Hungay 5	Rev.: Korea 5
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach	Physics ±3 Correct and relevant physics Scientific approach	Physics ±3 Correct and relevant physics Scientific approach
☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression Opponent ±1 Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions Contribution to the discussion	Presentation ±1 Clear and understandable Appropriate manner Overall impression Present his own idea. Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others Novelty of the report Contribution to the discussion	Final Grade: Opponent	This sheet will be cook of the fight assistant, so we can scan it and fight assistant, so we can scan it and anchive your partial grades – please do not bend Final Grade: Reviewer

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m:	Stage: Z Problem no.: 5		
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	nd data (or demonstrate the phenomena if		
ans	an attempt to communicate difficult or		
	principles • the opponent understood the		
d.	nd questioned the validity of the data • the		
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25	opponent • the reviewer appreciated the		
n e	idence (not just superficial observations) •		
enn	nuer's understanding of concepts, theories,		
dat	on and for their specific role.		
on	ings if there were none to find.		
1	Rev.: Korea		
١	5		
ı	Led		
ı	Physics ±3		
1	☐ Correct and relevant physics		
1	☐ Scientific approach		
	☐ Validity of conclusions		
	☐ Accurate answers		
-	Presentation ±1		
1	☐ Clear and understandable		
1	☐ Appropriate manner		
	Overall impression		
	present his own idea 105		
	Reviewer ±1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	Provides a thorough review of report and discussion		
	 Expresses own opinion about topics presented or discussed 		
	☐ Relevance of questions to both the		
	reporter and the opponent		
	Draws attention to points missed by the reporter or the opponent		
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	Final Grade: Reviewer 5		

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ight (Round no.):	2	Rooma	9	Stage:	2	_ Problem no.: _5	
uror: Destasy)			Signati	ire:	b	20	20

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and apparent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal apinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent.

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Russia 5	Opp.: Kungary 5	Rev.: Korea 5		
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers		
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 □ Clear and understandable □ Appropriate manner □ Overall impression	Presentation ±1		
Reporter ±1 0	Opponent ±1	Reviewer ±1 4 4		
Quality of experimental technique(s) Structure	Response to the reporter's solution Shows the strong and weak points	Provides a thorough review of report and discussion Expresses own opinion about		
Explanation of formulae and symbols	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent		
Appropriate models, conformity of dimensions Slides, on-site experiments, audio,	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent		
video, as appropriate References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
✓ Novelty of the report Contribution to the discussion		fight assistant, so we can be a please arthree your partial grades – please do not bend		
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer 7 d after IOC feedback and approved by EC on 2011-11-03		



Scoring Guidelines Fight (Round no.): 2 Room: 9 Stage: 2 Problem no.: A report should include: a presentation of the appropriate concepts, theories and principles of the problem
 an explanation of the observed phenomena application of appropriate mathematics • reasonable experimental technique to gother and record data (or demanstrate the phenomena i appropriate) . linking of theoretical and experimental findings to draw suitable conclusions . an attempt to communicate difficult or complex ideas in an effective and understandable manner An opposition should show that: the apponent challenged the reporter's understanding of the presented concepts, theories and principles . the apponent understand the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report. A review should show that: . the reviewer succeeded in giving an objective summary of the performances the reporter and opponent . the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal apinion was in evidence (not just superficial observations) such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories principles and appropriate mathematics used by the reporter and the opponent The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role. · The reporter, opponent and reviewer each stort with 5 points. Consider the following suggestions to add to or deduct from the initial 5 points. Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed as not finding shortcomings if there were none to find. WY Rev.: Physics ±3 Physics ±3 Physics ±3 □ Correct and relevant physics Correct and relevant physics Correct and relevant physics Scientific approach ☐ Scientific approach ☐ Scientific approach ■ Validity of conclusions ☐ Validity of conclusions ■ Validity of conclusions Accurate answers ☐ Accurate answers 1 Accurate answers Presentation ±1 Presentation ±1 Presentation ±1 ☐ Clear and understandable ☐ Clear and understandable ☐ Clear and understandable ☐ Appropriate manner ☐ Appropriate manner ✓ ☐ Appropriate manner Overall impression ☐ Overall impression Overall impression Opponent ±1 Reviewer ±1 Reporter ±1 Response to the reporter's Provides a thorough review of ☐ Quality of experimental ✓ technique(s) report and discussion Shows the strong and weak points ☐ Expresses own opinion about ☐ Structure topics presented or discussed of the report ☐ Explanation of formulae and ♣. Relevance of questions to both reporter and the opponent ☐ Finds shortcomings or errors in symbols the report Appropriate models, conformity □ Relevance of the questions Draws attention to points miss of dimensions by the reporter or the opponer ☐ Contribution to the discussion ☐ Slides, on-site experiments, audio. video, as appropriate This sheet will be collected by th ☐ References, proper citations of ★ fight assistant, so we can scan it as ideas and input of others archive your partial grades - plea ■ Novelty of the report do not bend □ Contribution to the discussion Final Grade: Reviewer Final Grade: Opponent Final Grade: Reporter

Revised after IOC feedback and approved by EC on 2011-

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Fight (Ro	und no.):	2	_ Room:	9	Stage:	2	Problem no.: 5,
Juror:	Gink	E	Kner	Signat	ure:	de	e .

Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an opplication of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Repsia 5	Opp.: Human 5	Rev.: Korea 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner / \ ()
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 8 8
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate		by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so see can scan it and fight assistant, so see can scan it and
☐ Novelty of the report		anchive your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer 7



			-		0		10
Fight (Round no.):	2	Room:	7	Stage:	5	Problem no.:	17
wor: les MA	RTER	ENKO:	Signati	ire:	/	In-	
A				/			

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
opponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
 such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
 principles and appropriate mathematics used by the reporter and the opponent.
- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

 Don't punish missing 'answers' when no 	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Hungary 5	Opp.: Lopen 5	Rev.:
Physics ±3	Physics ±3	Physics ±3 +2
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 + 1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Reject 16.

Revised after IOC feedback and approved by EC on 2011-11-03

Scoring Guidelines

Fight (Round no.): 2 Room: 9 Stage: 3 Problem no.: 17.

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
apponent appreciated and highlighted the strengths and weaknesses of the report.

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.

 Select each partial grade from each sec Don't nunish missing 'answers' when n 	o questions were posed or not finding shortco	mines if there were none to find.
thurson	Korea	(8435)a.
Rep.: Noch JOF-	Opp.: Jimos Hon.	Rev.: VACUI
Plaszko 5	5 /M	Matium. 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
11 x2		Presentation +1
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can seal a rades - please
☐ Novelty of the report		anchive your parvar a
☐ Contribution to the discussion		do not bend





ght (Round no.):	2	Room: 9	Stage:	3	Problem no.:	17
Nan		Cienat	1000	N	P	

Revised after ICC feedback and approved by EC on 2011-11-03

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or
complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and apponent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

- . The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Hungary 5	Opp.: Kora 5	Rev.: Russia 5
Physics ±3 Correct and relevant physics	Physics ±3 +1	Physics ±3 40.5
☐ Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1 f0.9	Presentation ±1 +0.9
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner / \
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 +0.5	Opponent ±1	Reviewer ±1 66 11
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☑ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grant
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Rejected: #16

Final Grade: Reporter

		Fight (Round no.):	2 Room:	Stage: 3 Problem no.: 17
Scoring Guide	lines	suror: Hasyn	ski	Signature: B. K
application of appropriate mathematic	cs • reasonable of and experiment	experimental technique of findings to draw su	e to gother and re	iplanation of the observed phenomena • an econd data (or demonstrate the phenomena if is • an attempt to communicate difficult or
An opposition should show to the opponent challenged the reports	hat: ev's understandi the apponent cr	ng of the presented con	of technique used	nd principles • the opponent understood the land questioned the validity of the data • the
important aspects (especially the cont	roversial ones) ve, non-trivial a	 the reviewer's person nd demonstrated, wher 	al opinion was in e possible, the re	and opponent • the reviewer appreciated the evidence (not just superficial observations) • viewer's understanding of concepts, theories,
The reporter, opponent and revie Consider the following suggestio Select each partial grade from ea Don't punish missing 'answers' w Rep.: 5	ns to add to or ch section and hen no question	deduct from the initi write it in the corres	ponding box.	Rev.: Russia 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	W co	orrect and relevant cientific approach alidity of conclusion courate answers		Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Pres	entation ±1 lear and understand ppropriate manner werall impression		Presentation ±1 Clear and understandable Appropriate manner Coverall impression
Reporter ±1 0	Орр	onent ±1	-1	Reviewer ±1 A H +0,5
Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conform of dimensions Slides, on-site experiments, a video, as appropriate References, proper citations ideas and input of others	of sity Rudio, C	esponse to the repo olution hows the strong and f the report inds shortcomings on he report elevance of the que ontribution to the d	d weak points or errors in estions	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both th reporter and the opponent Draws attention to points missed by the reporter or the opponent This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report				fight assistant, so we can archive your partial grades – please do not bend

Final Grade: Opponent

Final Grade: Reviewer

Revised after ICC feedback and approved by EC on 2011-11-03

phenomena • an the phenomena if nicate difficult or int understood the y of the data • the

Scoring Guidelines

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the objected phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental findings to draw suitable conclusions * an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the
appropriate appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

the reviewer succeeded in giving an objective summory of the performances the reporter and opponent • the reviewer appreciated the
important ospects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) •
such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and oppropriate mothematics used by the reporter and the opponent

- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each start with 5 points.

Rep.: Hungay 5	Opp.: Kores 5	Rev.: Russia 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner / \
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 // //
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties or
☐ Contribution to the discussion		do not bend



Scoring Guidelin	Fight (Ro	end no.): 2	Room: 9 st	age: 3 Proble	em no.: <u>M</u>
A report should include:)	
 a presentation of the appropriate concept application of appropriate mathematics • no appropriate) • linking of theoretical and ex- complex ideas in an effective and understand 	isonable experimenta perimental findings	l technique to gathe	r and record data (or	demonstrate the ph	enomeno if
An opposition should show that: • the opponent challenged the reporter's un appropriate mathematics presented • the op apponent appreciated and highlighted the str	ponent critiqued the	experimental techniq			
A review should show that: • the reviewer succeeded in giving an object important aspects (especially the controvers such personal opinions were informative, no principles and appropriate mathematics used	ial ones) • the review • trivial and demonst	er's personal apinion rated, where possible	was in evidence (no	just superficial abse	ervotions) •
The grade for each of the three teams of the reporter, opponent and reviewer of Consider the following suggestions to a Select each partial grade from each section of the punish missing 'answers' when no	ach start with 5 po add to or deduct fro tion and write it in	ints. m the initial 5 poin the corresponding I	ts.	_	
Rep.: Hungon 5	Opp.: Voc			Reusia	5
Ohucies +2	Dhysics +3	Γ"	Physics	+2	

 Select each partial grade from each sect 	W					
 Don't punish missing 'answers' when no 	questions were posed or not finding shortco	mings if there were none to find.				
Rep.: Hungon 5	Opp.: Vocea 5	Rev.: Russa 5				
Physics ±3	Physics ±3	Physics ±3				
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics				
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach				
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions				
☐ Accurate answers	Accurate answers	Accurate answers				
Presentation ±1	Presentation ±1	Presentation ±1				
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable				
Appropriate manner	Appropriate manner	☐ Appropriate manner				
Overall impression	Overall impression	Overall impression				
Reporter ±1	Opponent ±1	Reviewer ±1				
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion				
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about				
Explanation of formulae and	of the report	topics presented or discussed				
symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent Draws attention to points missed				
Appropriate models, conformity of dimensions	the report Relevance of the questions					
Slides, on-site experiments, audio, video, as appropriate	by the reporter or the opponent					
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can stan it and				
☐ Novelty of the report		archive your parties go				
☐ Contribution to the discussion		do not bend				
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Special				



2

Round: ______ Room: _____/ Fight Assistants:_____

	Room: Fight Assistan Stage 1			Stage 2				Stage 3			Stage 4		
Team		Russia	Hungary	Russia Rep	Hungary	Korea	Hungary Rep	Korea Opp	Rev Rev	Rep	Орр	Rev	
uror	Rep 5	Opp 6	5	5	4	7	8	7	8				
Ilya Martchenko	6	6	6	5	7	5	6	7	8				
Susan Napier	6	6	6	6	7	5	5	8	7				
Varumon Suwonjandee Valiantsin Astashynski	6	6	5	6	5	7.	4	6	6				
11 11	7	7	6	6	6	6	4	6	6				
Uno Uno Ginka Exner	5	8	7	7	7	. 7	5	, 5	+	_		_	
Acting Team Member	Se Beom Lee	Vitalii Matunin	Abel Boregi	N. kolaysi biryakov	Andras Lauko	Jivoo Kim	Noel Plaszko	Jikoo Kir	Vitalii Matunin				
Rejected Problems	7	5,	10					16					
Accepted-Problem		15			5			17					