Scoring	(allin	P	iines
Scoring	OUIU	-	11100

ight (Round no.):	L ₁ Room	: 1_Stage	: 3 Pro	blem no.: 5
uror: PETER	JENE1	Signature:	124	

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
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 contraversial 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.: BELARUS 5	Opp.:Surtesurum 5	Rev.: FILLAPHRE 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 -4 -4 Cuality of experimental technique(s)	Opponent ±1	Reviewer ±1 0 0 0 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 questions	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	☐ Contribution to the discussion	by the reporter or the opponent	
ideas and input of others Novelty of the report Contribution to the discussion		This sheet will be concerns fight assistant, so we can scan it and archive your partial grades – please do not bend	
Final Grade: Reporter 3	Final Grade: Opponent 5	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03	



Cooring Guidalin	Fight (Round no.): 2 Room:	Stage: S Problem no.: 8
Scoring Guidelin	es juron 1 lino	Signature:
application of appropriate mathematics * re-	s, theories and principles of the problem * an exp asonable experimental technique to gother and re- perimental findings to draw suitable conclusions oble manner	cord data (or demonstrate the phenomena ii
An opposition should show that: • the opponent chollenged the reporter's un appropriate mothemotics presented • the op opponent appreciated and highlighted the str	derstanding of the presented concepts, theories as ponent critiqued the experimental technique used engths and weaknesses of the report	nd principles • the apponent understood the and questioned the validity of the data • the
important aspects (especially the controvers	Sive summary of the performances the reporter as ial ones) • the reviewer's personal opinion was in a-trivial and demonstrated, where possible, the rev I by the reporter and the opponent	evidence (not just superficial observations) •
The reporter, opponent and reviewer of Consider the following suggestions to Select each partial grade from each sec	consists of a partial grade for physics, presents each stort with 5 points. add to or deduct from the initial 5 points. tion and write it in the corresponding box. o questions were posed or not finding shortco	
Rep.: Kelarus 5	Opp.: Switzerland 5	Rev.: Singapore 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 ¾	☐ 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
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 t reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points misser
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		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11

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

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Sco	PIDA	Guir	olino
JUU	IIIIY	Quiu	elines

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 apparent challenged the reporter's understanding of the presented concepts, theories and principles .
 the apparent challenged the reporter's understanding of the presented concepts, theories and principles. 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:

of dimensions

video, as appropriate

■ Novelty of the report.

Final Grade: Reporter

☐ Slides, on-site experiments, audio,

References, proper citations of

ideas and input of others

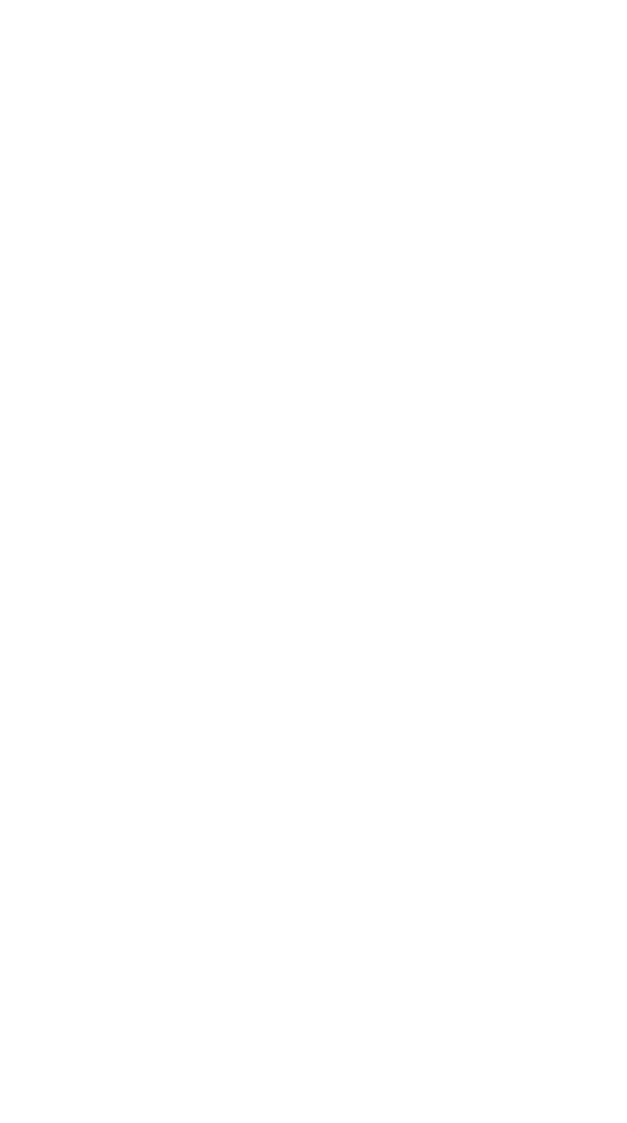
☐ Contribution to the discussion

- 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 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, SINGMOURE 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 Just and Reporter ±1 Opponent ±1 Reviewer ±1 ☐ Quality of experimental Response to the reporter's Provides a thorough review of technique(s) solution report and discussion ☐ Structure ☐ Shows the strong and weak points ☐ Expresses own opinion about topics presented or discussed of the report Explanation of formulae and ☐ Finds shortcomings or errors in ☐ Relevance of guestions to both the Bolly done reporter and the opponent the report Appropriate models, conformity

☐ Relevance of the questions

Final Grade: Opponent

☐ Contribution to the discussion



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Fight (Round no.):	* Ro	iom:	Stage:	Problem n	0.
Juror: RUMD	RAGE	Signat	ure:	die	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 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, 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.: ISELARUS 5	Opp.: SWITEGRAND 5	Rev.: SINFAPOLE 5	
Physics ±3	Physics ±3	Physics ±3	
② □ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
* El Scientific approach	☐ Scientific approach	☐ Scientific approach	
T Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1 +05	
☐ 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	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 of dimensions 	the report (D) 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 light assistant, so we can scan it and	
☐ Novelty of the report		archive your parue s	
2 Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent G	Final Grade: Reviewer safter IOC feedback and approved by EC on 2011-11-03	



Fight (Round no.):	Room:	Stage: 3	Problem no.:
Juror: Ermat neith			- 2-

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 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.: Belarvs 5	Opp.: Switzerland 5	Rev.: Singapore 5
Physics ±3	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 +0.5	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 -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	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, and prades - please
☐ Novelty of the report		archive your payner a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 7



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ight (Round no.):	4	Room:	Sta	3	Problem no.:	8
NEGN			nature:	O.		

A report should include:

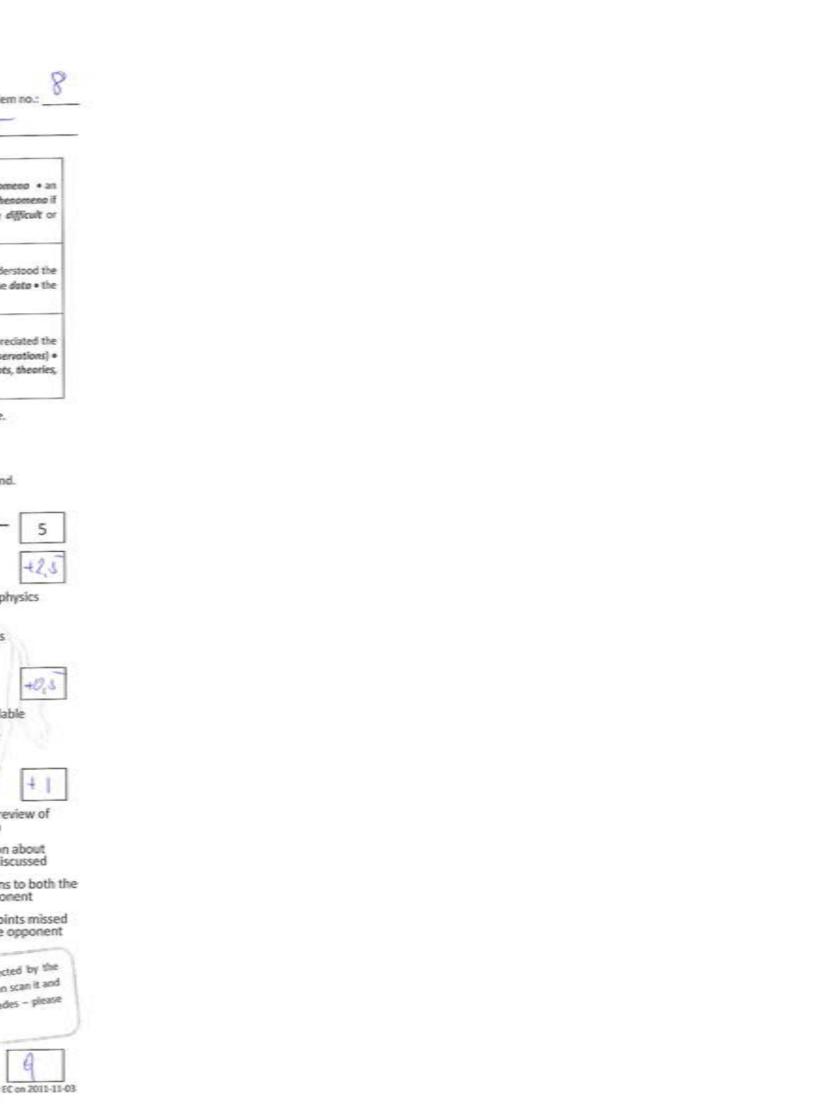
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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) •
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- 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.: Saiter land 5	Rev.: Sugaport 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 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 o
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer safter IDC feedback and approved by EC on 2011-11-03



Sco	rina	Guide	lines
	ımıy	ONINC	111100

ight (Round no.):	4	Room:	1	Stage:	2	_ Problem no.:	7
wron: PETER	JEW	[]	Signatu	ire:	1	w	

A report should include:

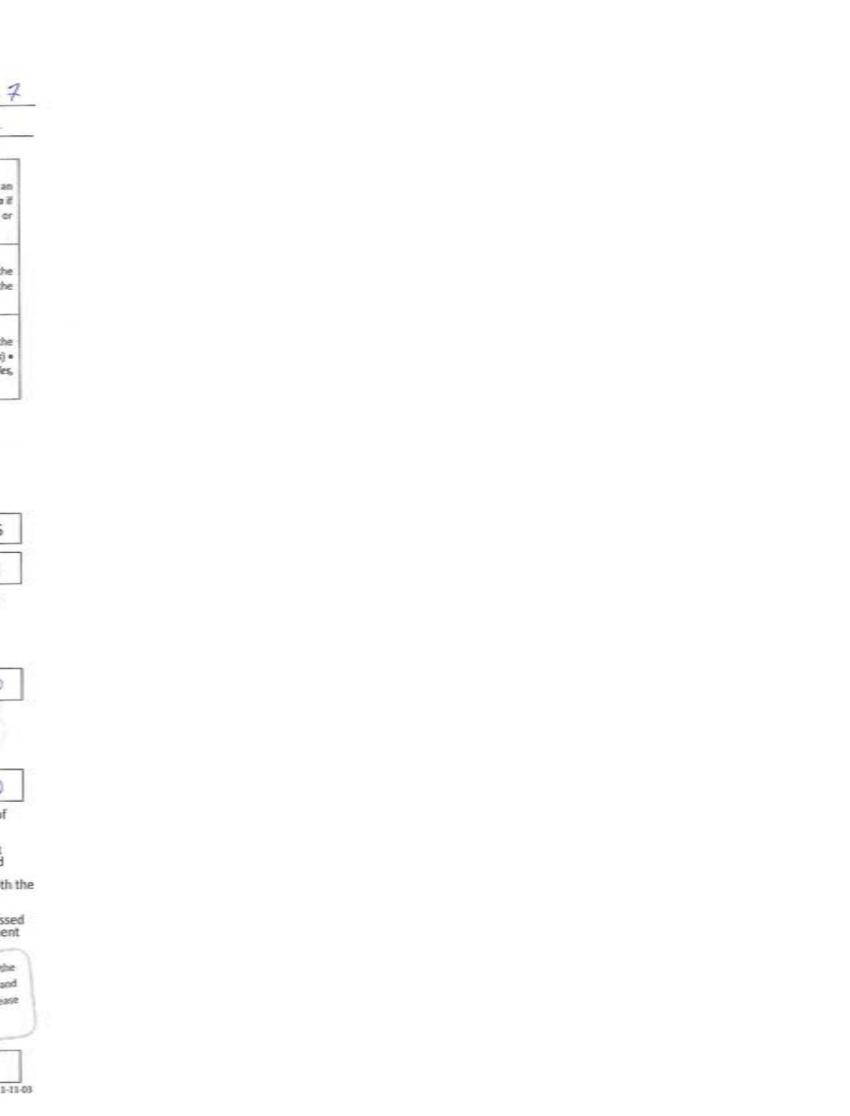
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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 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,
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- · The reporter, opponent and reviewer each start with 5 points.
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- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: SINGAPURE 5	Opp.: BELACUS 5	Rev.: SULTRED 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 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		
 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 mades - please		
☐ Novelty of the report		anchive your parous grand		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6 Final Grade: Reviewer 6 6 6 6 6 6 6 6 6 7 7 8 7 8 8 8 8 8 8 8 8 8		



Scoring Guidel	ines Suror: Uho	Stage: Problem no.: Signature:
application of appropriate mathematics	cepts, theories and principles of the problem * an ex * reasonable experimental technique to gother and re id experimental findings to draw suitable conclusion tondable manner	cord data (or demonstrate the phenomena if
appropriate mathematics presented • th	alt: 's understanding of the presented concepts, theories a ne opponent critiqued the experimental technique used ne strengths and weaknesses of the report	
important aspects (especially the contro	bjective summary of the performances the reporter a wersiol ones) • the reviewer's personal opinion was in e, non-trivial and demonstrated, where possible, the re- used by the reporter and the opponent	evidence (not just superficial observations) •
Select each partial grade from each	s to add to or deduct from the initial 5 points. In section and write it in the corresponding box. In section and write it in the corresponding box. In o questions were posed or not finding shortco	Rev.: Sintzel 6 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
resentation ±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
eporter ±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, conformi 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	djø, 🛘 Contribution to the discussion	by the reporter or the apponent
References proper citations of	1	and about will be collected by the

	Fight (Round no.): 4 Room:	1 Stage: 2 Problem no.: 7
Scoring Guideli	nes Illian	Signature:
	Jan	Agionate.
A report should include:		/
	pts, theories and principles of the problem * an ex reasonable experimental technique to gather and re	
appropriate) * linking of theoretical and complex ideas in an effective and understo	experimental findings to draw suitable conclusion adable manner	s • an attempt to communicate difficult or
An opposition should show that		
• the apparent challenged the reporter's	understanding of the presented concepts, theories a	그리스 마시아 아이를 가지 않는데 보다 아니라 하다 아이들이 되었다면 하나 나를 되었다면 하는데 없다면 하다.
appropriate mathematics presented • the opponent appreciated and highlighted the	opponent critiqued the experimental technique used strengths and weaknesses of the report	and questioned the validity of the data • the
A review should show that:		
	ective summary of the performances the reporter a	
	ersial ones) • the reviewer's personal opinion was in non-trivial and demonstrated, where possible, the re-	
principles and appropriate mathematics u	sed by the reporter and the opponent	0
The grade for each of the three tean	is consists of a partial grade for physics, present	ation and for their specific role.
 The reporter, opponent and reviewe 	or each start with 5 points.	1
	o add to or deduct from the initial 5 points. section and write it in the corresponding box.	
	no questions were posed or not finding shortco	mings if there were none to find.
- D 0.	la Palan	Cit le
Rep.: Dingalon 5	Opp.: Bearing 5	Rev.: Just zeul im 5
0 -	(3)	
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
() ()	1	11 ///
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 J 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, aud video, as appropriate	/-	by the reporter or the opponent
References, proper citations of jideas 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		fight assistant, so we con- archive your partial grades - please
☐ Contribution to the discussion	2	do not bend
		[3.]

ight (Round no.): _	4	Room: 1	Stage: 2	Problem no.:	7 (Shoded
wor. Brown Watte	mak	nsinchsien	ature: hat	25	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
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.: Singapore 5	Opp.: Belans 5	Rev.: Switzerland 5
Physics ±3 + 1.5	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 Fo.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 +1	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	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in ☐ Relevance of questions	
☑ Appropriate models, conformity	the report	reporter and the opponent 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	1100
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 e-
g Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer Latter IOC feedback and approved by EC on 2011-11-03



	0 01	1 1	
Scoring	(31110)	P	lines
JUVIIII	GRIR	\sim 1	111100

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ight (Round no.):	Room:	Stage:	Problem no.:	
me RECNE	A. Sier	sature: Wu	200	

A report should include:

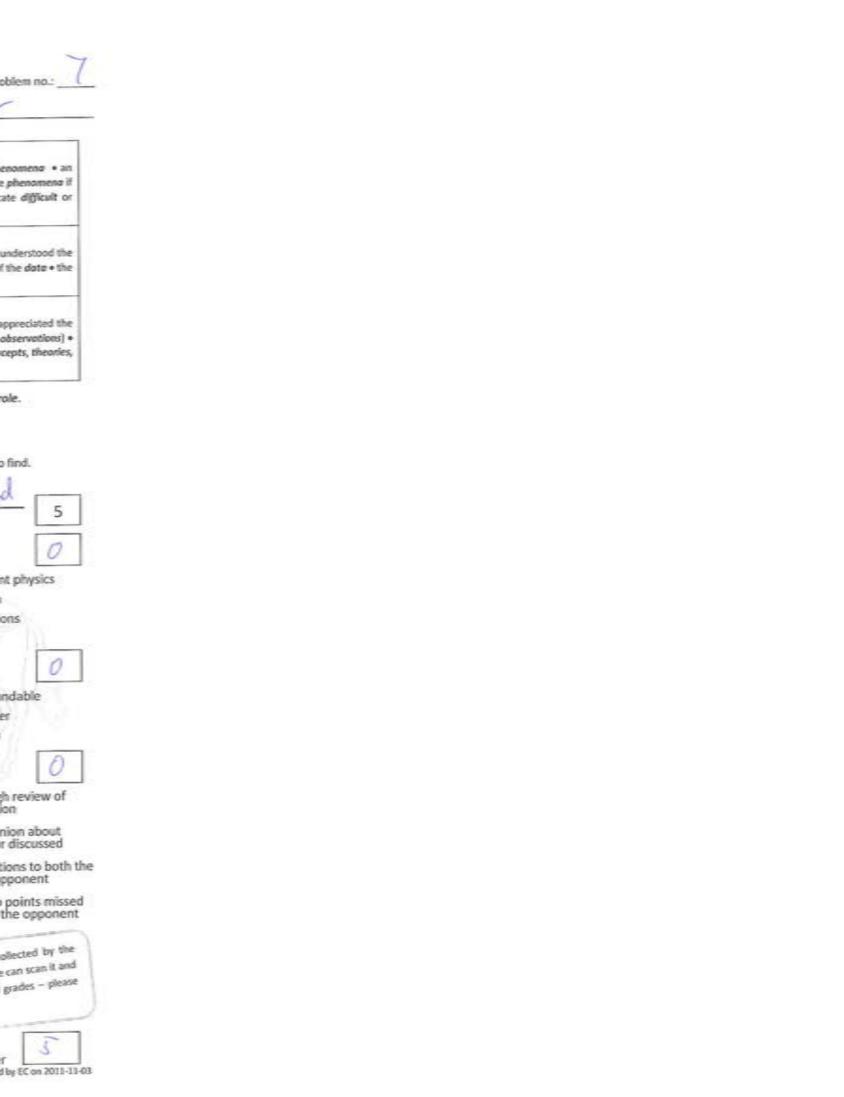
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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.: Singapore 5	Opp.: Iderus 5	Rev.: Sutuland 5
Physics ±3 +2.5	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	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 light assistant, so we can scan it and light assistant, so we can scan it and
☐ Novelty of the report		archive your partial pro-
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revise:	Final Grade: Reviewer



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Sec	oring	(-1110)	P	lines
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Fight (Round no.):	f Rooms	Stage: 2 Prob	lem no.:
		ature SADe	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 mathematics • 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 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 weoknesses 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 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
- · Select each partial grade from each:
- · Don't punish missing 'answers' when S. NGADORE

☐ Shows the strong and weak points

☐ Finds shortcomings or errors in

☐ Relevance of the questions

Final Grade: Opponent

☐ Contribution to the discussion

of the report

the report

J.J. M.	5
Physics ±3	12
☐ Correct and relevant ph	rysics
☐ Scientific approach	111
C Socialité approach	

Scientific approach
Validity of conclusions
Accurate answers

7.43	6.1
Presentation ±1	0
☐ Clear and understandable	
☐ Appropriate manner	
Overall impression	
Reporter ±1	0

	Quality of experime technique(s) (***	ental
_	Structure	percueles.

-	000000	
	Explanation o	f formulae and
	symbols	Amore

Appropriate models, conformity
of dimensions

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

References, proper citations of ideas and input of others
ideas and input of others

Novelty	of the	report

Con	ërii	bution	tin-	the	eri.	(C)TI	ICC.	ion
-	196.10	44001	***	41.50	*		~	~

inal	Grador	Reporter	. 1
1100	CO DOC.	reporte.	

	add to or deduct from the initial 5 points.	
	tion and write it in the corresponding box. o questions were posed or not finding shorts	comings if there were none to find.
	Opp.: ANTON 5	Rev.: LIOBA 5
	Physics ±3	Physics ±3
	☐ Correct and relevant physics	☐ Correct and relevant physics
	☐ Scientific approach	☐ Scientific approach
	☐ Validity of conclusions	☐ Validity of conclusions
	☐ Accurate answers	☐ Accurate answers
1	Presentation ±1	Presentation ±1
	☐ Clear and understandable	☐ Clear and understandable
	☐ Appropriate manner	☐ Appropriate manner
	☐ Overall impression	☐ Overall impression
	Opponent ±1 ねた	Reviewer ±1
	Response to the reporter's solution	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

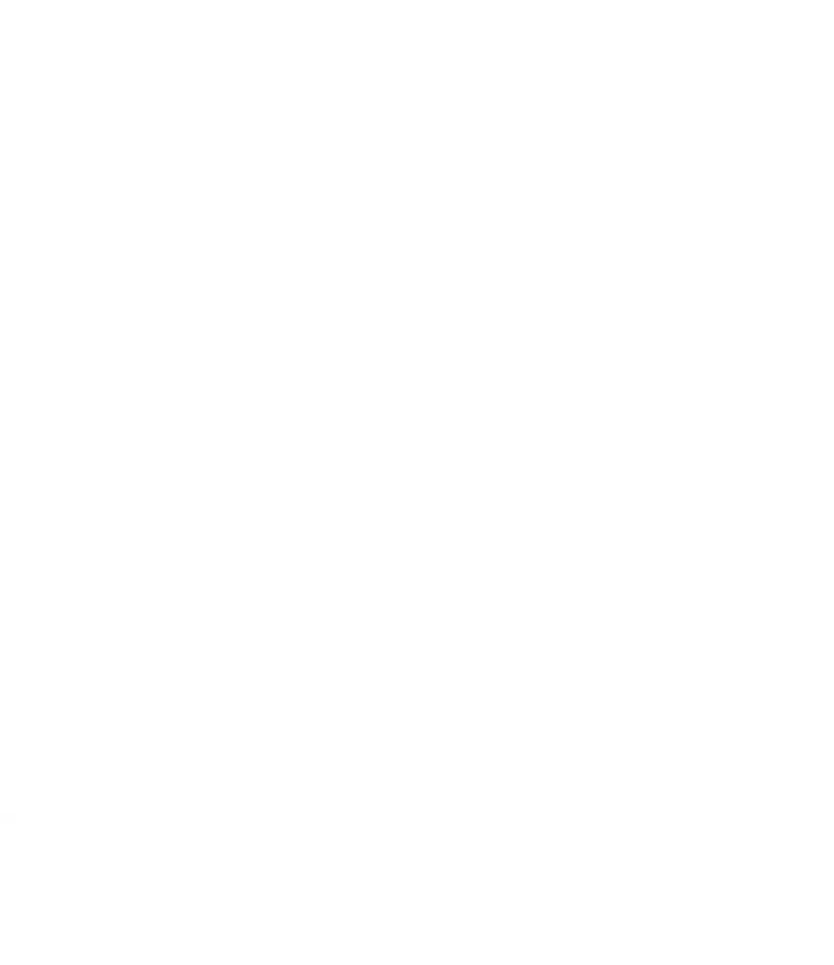
by the reporter or the opponent

This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please

do not bend

Final Grade: Reviewer

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



L	1	0	7	
Fight (Round no.):	Room:	Stage:	_ Problem no.: _ T	_
JUNOS: KONDRAL	UL Signa	ture: (llu)	dues	

A report should include:

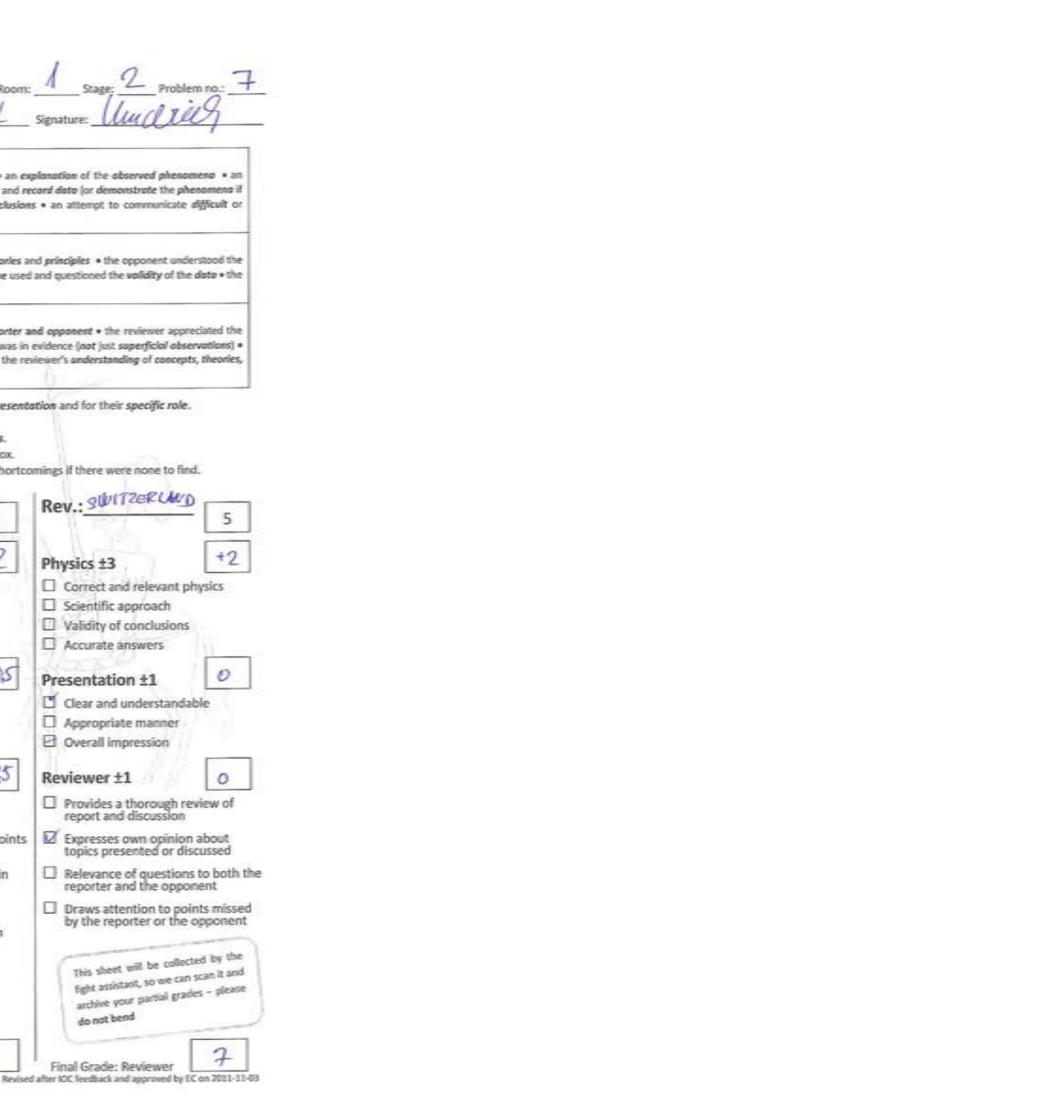
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical 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 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 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.: 9WGAPORE		Opp.:69 HEUS		Rev .: 9101726RUW	0
кер.: 3800 8 020	5	Opp.:	_ 5	Rev.: 3	- 5
Physics ±3	+3	Physics ±3	+2	Physics ±3	+2
☐ Correct and relevant	physics	Correct and relevant	t physics	Correct and relevant p	hysics
☐ Scientific approach	1(7-	☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusion	15	☐ Validity of conclusion	ns	☐ Validity of conclusions	
☐ Accurate answers		☐ Accurate answers		☐ Accurate answers	
Presentation ±1	0	Presentation ±1	+05	Presentation ±1	0
Clear and understand	table	Clear and understan	dable	Clear and understandable	
☐ Appropriate manner		Appropriate manner		☐ Appropriate manner	
Overall impression		Overall impression		☐ Overall impression	
Reporter ±1	+1	Opponent ±1	+ 05	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		n about scussed
 Explanation of formula symbols 	lae and	☐ Finds shortcomings or errors in		Relevance of questions to both the reporter and the opponent	
 Appropriate models, of dimensions 	conformity	the report Relevance of the questions		☐ Draws attention to points missed	
☐ Slides, on-site experii video, as appropriate		Contribution to the		by the reporter or the	
References, proper citations of ideas and input of others				This sheet will be collect fight assistant, so we can	ted by the scan it and
☐ Novelty of the report				archive your parvis 6"	des - piease
☐ Contribution to the d	liscussion			do not bend	
Final Grade Reporter	a	Final Grade: Opponent	8	Final Grade: Reviewer	7



4	1	1	0
Fight (Round no.):	Room: // Sta	ege: Problem no.	5
Juror: KUND 12HE	IL Signature: _	leedra	X_

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 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.: SULTEERUM 5	Opp.: SOURAPORE 5	Rev.: BELARUS 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	(I) Clear and understandable	
☐ Appropriate manner	M Appropriate manner	Appropriate manner	
Overall impression	☐ Overall impression	TO Overall impression	
Reporter ±1 +0r5	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 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	
☐ Novelty of the report		anchive your partial by	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent 3	Final Grade: Reviewer 4	



ight (Round no.): 4	Room:	Stage:	Problem no.: 9 ((byer)
per Brent Netten			The state of the s	

A report should include:

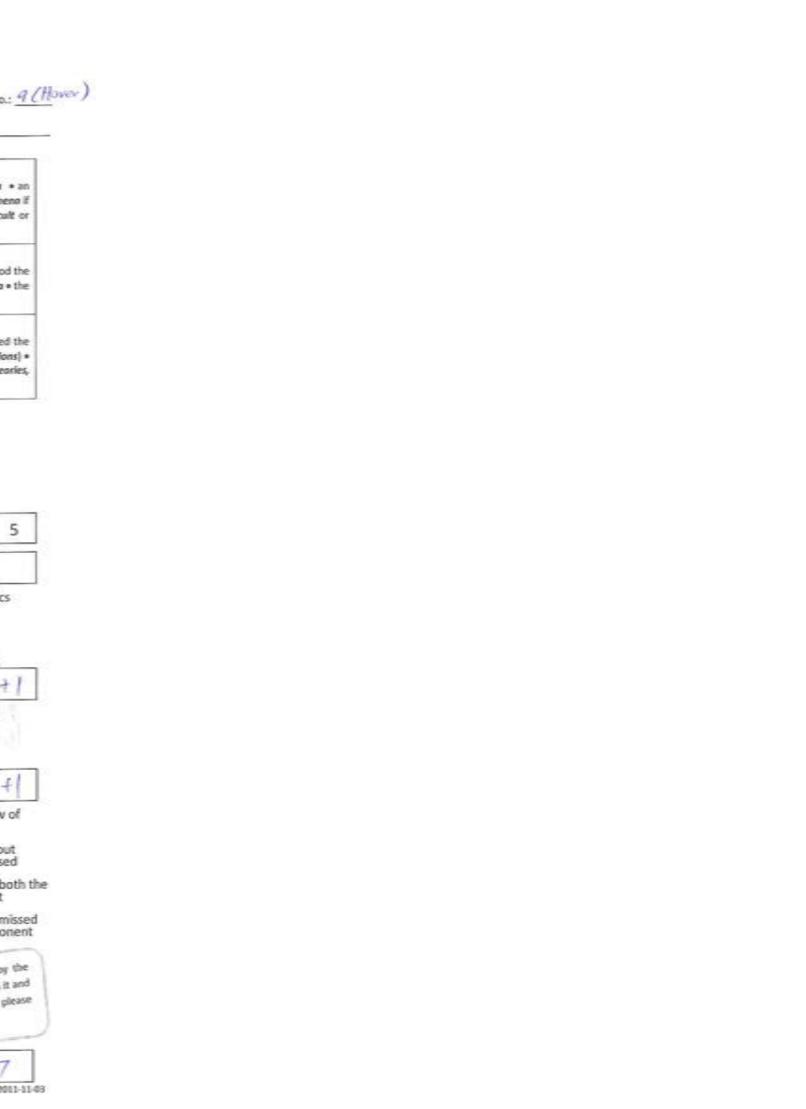
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mothematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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
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.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Swilderland 5	Opp.: Singapore 5	Rev.: Belares 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 +0.3	Opponent ±1 + 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 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.
☑ Novelty of the report		archive your partial graces
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer Safter IOC Seedback and approved by EC on 2001-11-03



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Scoring	(allin	P	ines
Journing	0010		11100

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ght (Round no.): 4	Room:	Stage:	Problem no.:	1
- REGNE	R Gar	natura 14	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 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.: Sw. Woland 5	Opp.: Sugapore 5	Rev.: Belosus 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 / / +01	
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 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 such 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 6 after 100 feedback and approved by EC on 2011-11-03	



Scoring Guidelines	Fight (Round no.):
A report should include:	

	4		1 .		Problem no :	9
ight (Round no.):				tage:		
uron: Site N	PAPIE	15	Signature:	_ 5	Popel	

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

* 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) . 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 apparent challenged the reporter's understanding of the presented concepts, theories and principles * the apparent understand 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 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 secti 	on 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.: MICHAEL 5	Opp.: 1 14 7010 5	Rev.: DMITHY 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 Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent		
Explanation of formulae and symbols Control	of the report Finds shortcomings or errors in			
Appropriate models, conformity of dimensions	the report Relevance of the questions			
Slides, on site experiments, audio, video, ayappropriate	☐ 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 a		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer		



Fight (Round no.):	4	Rooma	1	Stage:	1	Problem no.:	9	
DUTON PETER	3FX	18(Signat.	ire:	2	-2-		

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:

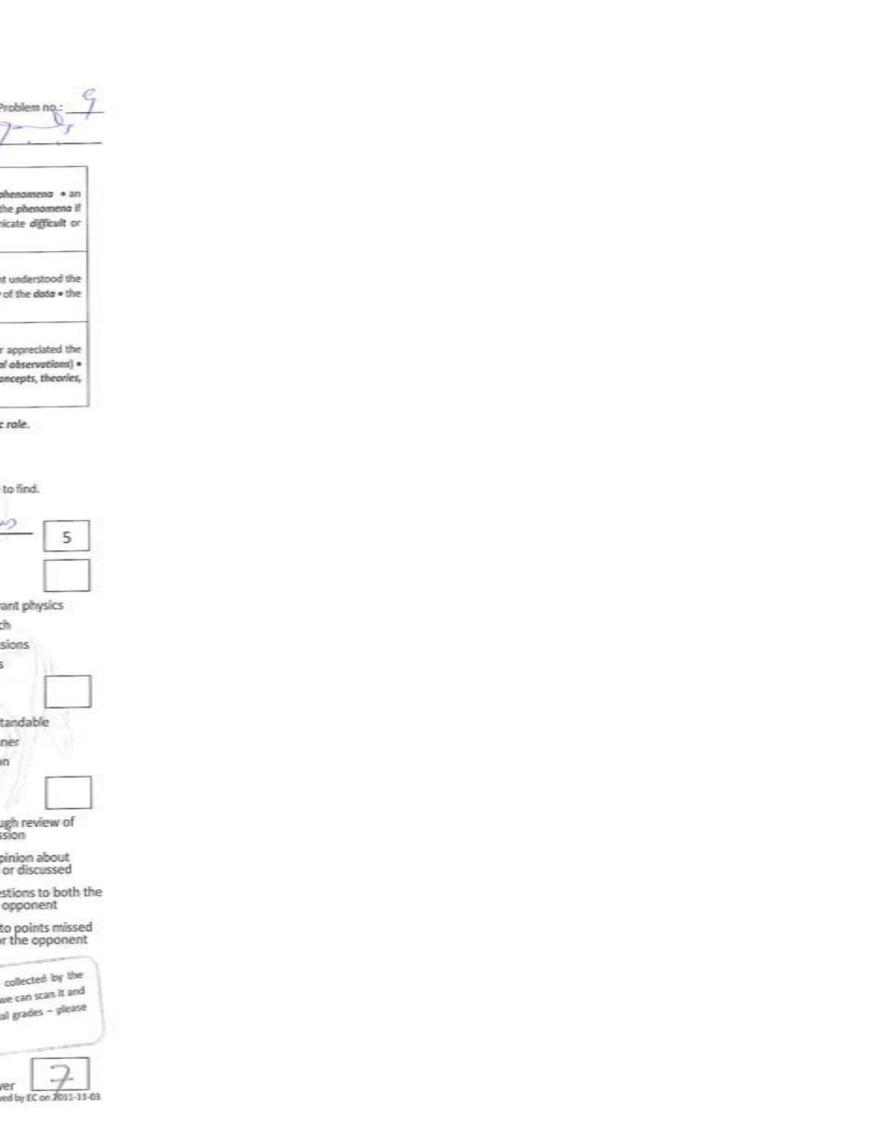
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted 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 motheractics 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.: SKITZIZLAUD	5	Opp.: SING APURE	5	Rev.: BELAQUIS	5	
Physics ±3	+1	Physics ±3	4	Physics ±3	1	
☐ Correct and relevant phys	sics	Correct and relevant p	hysics	Correct and relevant phy	sics	
☐ Scientific approach		☐ Scientific approach		☐ Scientific approach		
☐ Validity of conclusions		☐ Validity of conclusions		☐ Validity of conclusions		
☐ Accurate answers	110	☐ Accurate answers		☐ Accurate answers	li	
Presentation ±1	D	Presentation ±1	O	Presentation ±1	0	
☐ Clear and understandable		☐ Clear and understanda	ble	☐ Clear and understandabl	е	
☐ 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 report solution	ter's	Provides a thorough revi report and discussion	ew of	
☐ Structure		Shows the strong and of the report	weak points	Expresses own opinion a topics presented or disc.	bout	
 Explanation of formulae a symbols 	end	☐ Finds shortcomings or	errors in	Relevance of guestions to both th		
☐ Appropriate models, conf	inemite	the report		reporter and the oppone	ent	
of dimensions	Ottoricy	☐ 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 citation ideas and input of others	ons of			This sheet will be collected fight assistant, so we can so	an it and	
☐ Novelty of the report				archive your partial grant	- pear	
☐ Contribution to the discu	ssion			do not bend		
Final Grade: Reporter	6	Final Grade: Opponent	6	Final Grade: Reviewer	4	



Scoring Guidelin	Fight (Round no.): A Room:	(5)-4
Joseph Strategy	Juron: Care	Signature:
application of appropriate mathematics + re-	s, theories and principles of the problem * an ex asonable experimental technique to gother and re perimental findings to draw suitable conclusion lable manner	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's un	derstanding of the presented concepts, theories a ponent critiqued the experimental technique used	nd principles • the opponent understood the and questioned the validity of the data • the
important aspects (especially the controvers	tive summary of the performances the reporter a follones) • the reviewer's personal opinion was in o-trivial and demonstrated, where possible, the re i by the reporter and the opponent	evidence (not just superficial abservations) •
The reporter, opponent and reviewer of Consider the following suggestions to Select each partial grade from each sec	consists of a partial grade for physics, present each stort with 5 points. add to or deduct from the initial 5 points. It in the corresponding box. o questions were posed or not finding shortco.	
hysics ±3	Physics ±3	Physics ±3
Correct and relevant physics Scientific approach Validity of conclusions	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
resentation ±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	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 reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points misse 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
Novelty of the report		archive your pareas or
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revise	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11



Round: 4 Room: Fight Assistants: Mr. Konsen Papunay Mr Thanundon kong nok

		Stage 1		1	Stage 2			Stage 3			Stage 4	
Team	Switzerland	Singapore	Pelanus	Singapore	Relans	Switzerland	Belarus	Switzerland	Singapore			
luror	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev
František Kandracik (Nai)	5	٦	7	9	8	7	5	Ь	7			
Brownet Waltenakes with	6	Υ	7	8	6	6	5	6	7			
Unite Regner	5	6	6	8	7	5	Δ	5	9			
Susan Napier	7	6	6	7	6	б	3	4	8			
Peler Jenei	6	6	1	g	6	6	3	5	7			
Uno Uro	6	7	٦	8	Ч	6	A	6	٦			
Acting Team Member	Michael Fogenmaser	Jon Hong Ling	Dm/trig Batarey	JIN PING KON	myan Busseray	Libba Haimbach.	Anastasiya Podnatko	Phyllis Breth	Ju Jun Shen			
Rejected Problems							15 M	oning Byoush				
Accepted Problem	9 Hours	iciall		1 sh	oded fole		8 Suga	c and Sall				

Signature Fight Assistant: Double-checked with Scoring Guidelines by second Fight Assistant (signature): 37448

Challenge problem 13 Magnetic pendulum accepted

Scoring	Guide	inec
Scoring	Guiuei	illes

Fight (Round no.): 4 Room	: 2 Stage: _	Problem no.: 13
Juror: a. Jennings	Signature:	

A report should include:

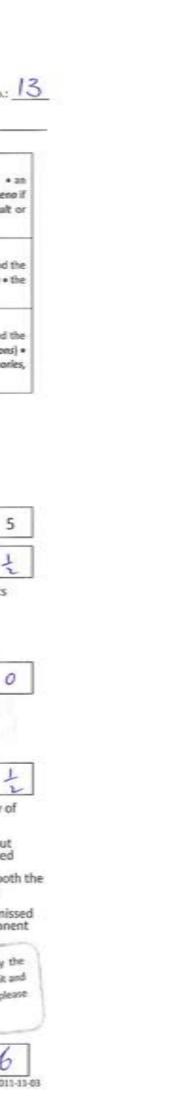
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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 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 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

Dun't punish midding answers when no	questions were posed or not mixing shorter	tranga a trici e arci e rione to mas.		
Rep.: Macao 5	Opp.: Hangara	Rev.: Hungary 5		
Chon Hou In	John Lukowsky	Andras Lauko		
Physics ±3 -2	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 + ½	Presentation ±1		
Clear and understandable	Clear and understandable	☐ Clear and understandable		
Appropriate manner	Appropriate manner	☐ Appropriate manner		
→ Overall impression	② 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 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		
Novelty of the report		archive your parties govern		
Contribution to the discussion		do not bend		
Final Grade: Reporter 2	Final Grade: Opponent 4	Final Grade: Reviewer 6 I after IOC feedback and approved by EC on 2011-11-03		



Fight (R	ound no.):	H	Room;	2	Stage:	1	Problem no.: 13	
lum	PENG	PAN		Sienat	ure:	1. 9	eng p on	

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
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.: 140 5	Opp.: 03 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 6.5	Opponent ±1	Reviewer ±1 0.5		
Quality of experimental technique(s)	2 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 b			
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 parture or		
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		



Fight (Round no.):	4	Rooms	2	Stage:	Problem no.:	13
Numer L. Gla		ink		- 1		

A report should include:

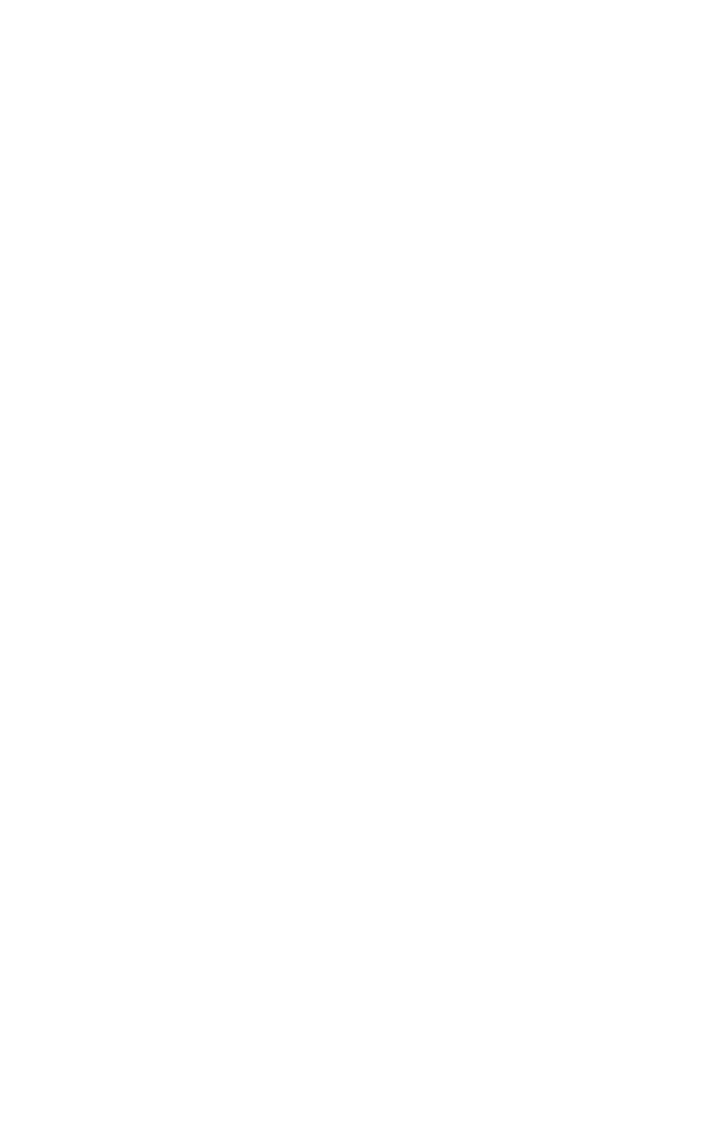
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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 opponent the reviewer appreciated the
 important aspects (especially the contraversial 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.: Mulao	Opp.: USA	Rev.: Hunday		
Chou Hou In	John Luham 5	Andres laylo 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 ±1 025	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 ±1 025	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 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 as		
☐ 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		



Fight (Round no.): #4	Room: 2 St	tage: 1 Problem no.:	13
wor. P. Reichly	Signature:	Rai Recly	

A report should include:

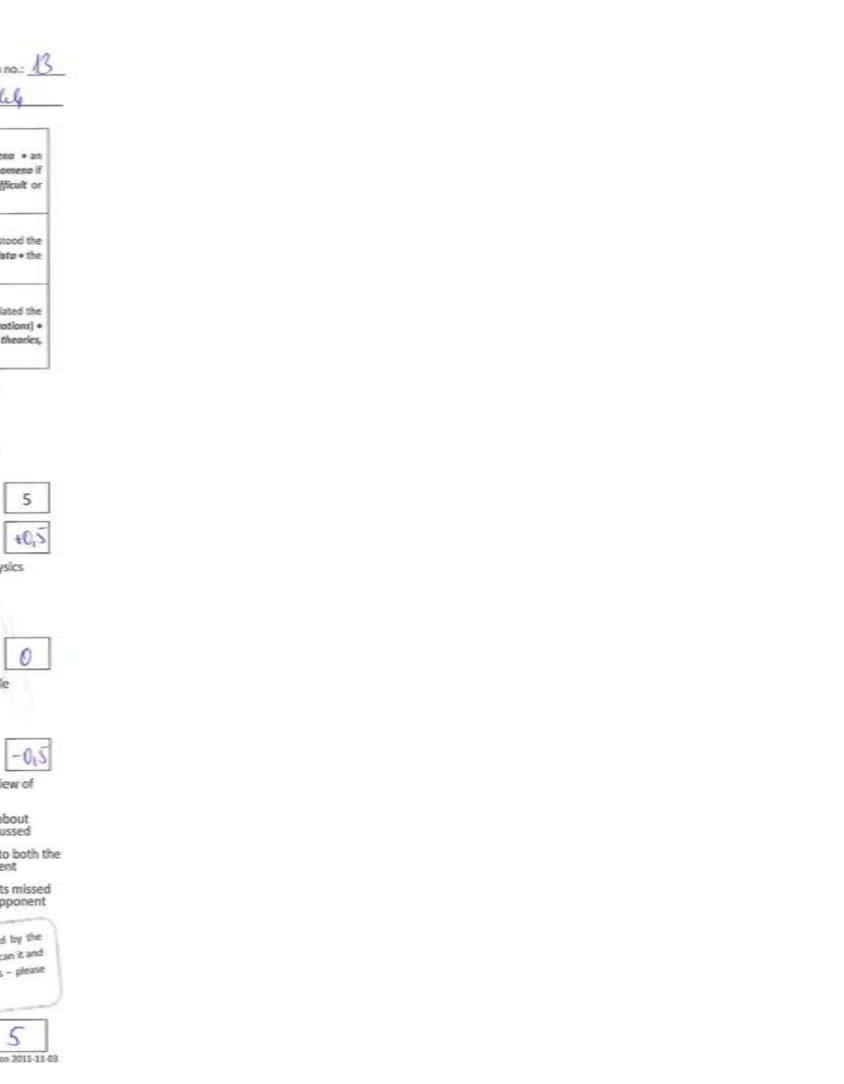
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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 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.: 15	Rev.: Sunny 5	
Physics ±3	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 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 _t $\bar{5}$	
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 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		arthise your parties and	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-09	



Fight (Round no.): 4. Room: 2 stage: 1 Problem no.: 13.
Juror: Yung-Yuang HSU signature: Yung-Yuan HSU

A report should include:

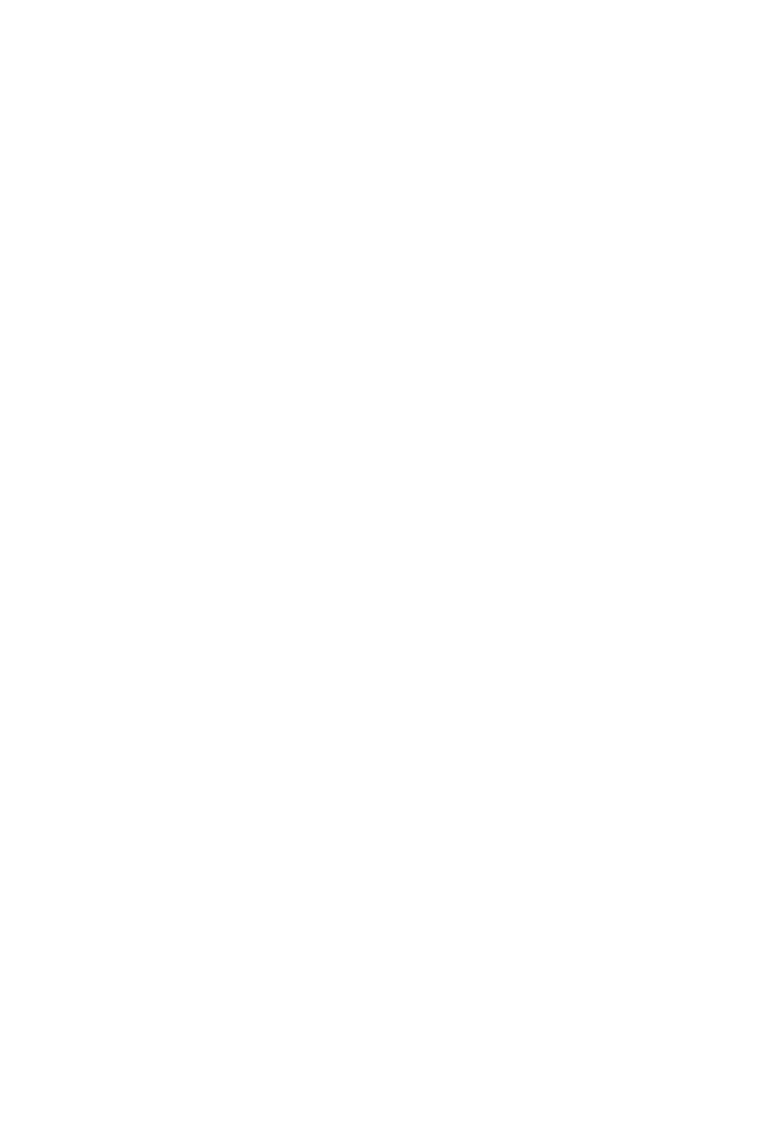
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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 opponent entire opponent entire 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.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Chou How In -	Opp.: John Lukawski	Rev.: Andras Lauko 5
Macar	United State.	Hugary
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	discussion.	This sheet will be collected by
☐ Novelty of the report		archive your parties grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Jaher IOC feedback and approved by EC on 2011-11-03



ight (Round no.): 1 Room: 2 Stage: Problem no.: 12
aror: Shche Nikov 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 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.

Maria LICA LILL

Rep.: IVIaca 0 5	Opp.: U >H 5	Rev.: Huhaaty 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	-El 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 -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	☐ 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	O 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 mades - please
☐ Novelty of the report		archise your partial grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent 3	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Challenge problem number 9 Hovercraft

Scoring Guidelines

Fight (Round no.): 4 Room: 2 Stage: 2 Problem no.: 9

JUTOT: G. JEMMINS. Signature: By hemmy

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, 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.: USA	Opp.: Hungary	Rev.: Macao
	0 7 5	1000
Andrew Mangabart	Tiena bamesti	Jungyi Xie
Physics ±3	Physics ±3	Physics ±3 0
☐ 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
+ Clear and understandable	Clear and understandable	🖒 Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	+ 母 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 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
Novelty of the report		artisive your parties a
Contribution to the discussion		do not bend
Final Grade: Reporter 4	Final Grade: Opponent 5	Final Grade: Reviewer 5



Fight (R	lound no.):	4	Rooms	2	_Stage:	2	Problem no.:	9
Juror:	PENO	291		Signa	ture:	T.P	engpar	

A report should include:

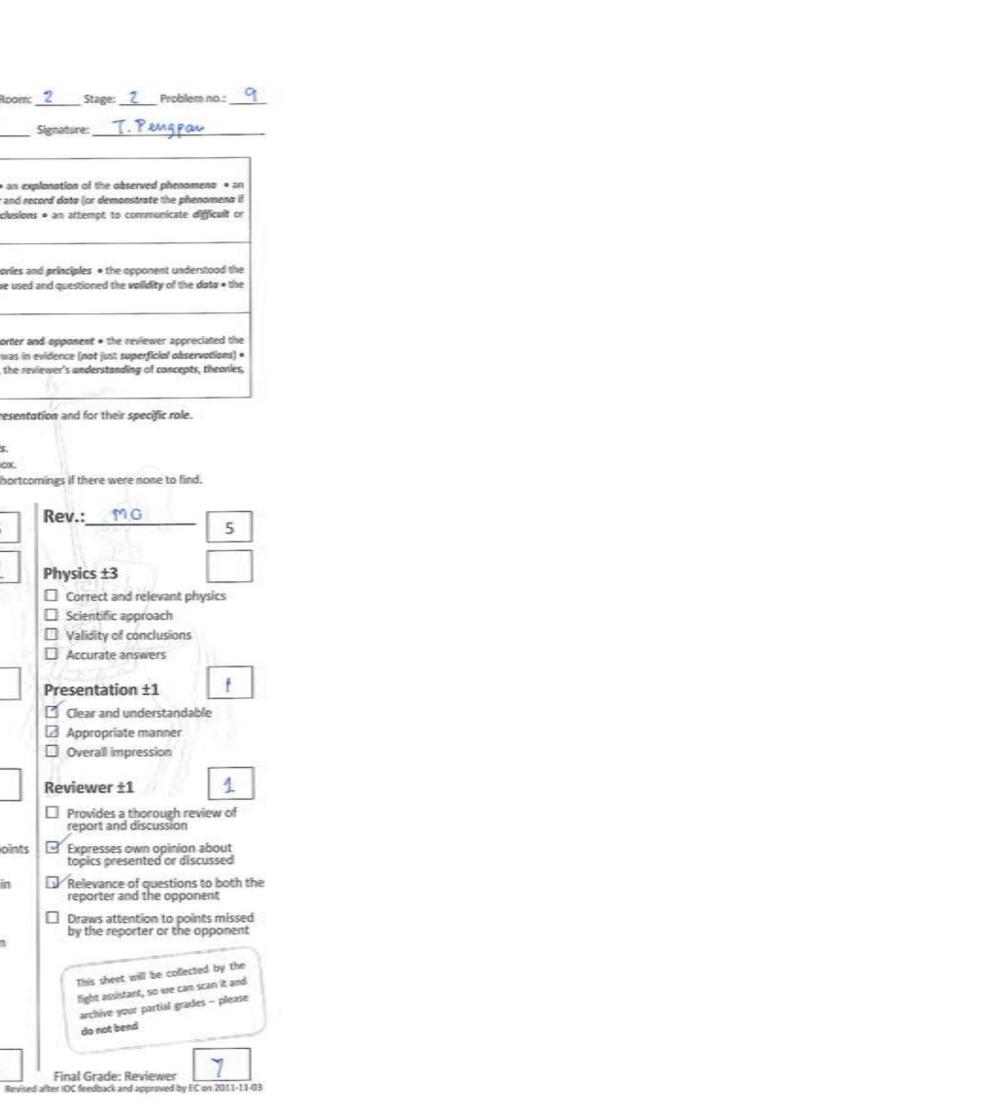
 a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) + linking of theoretical 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 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 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.:HU5	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 0.5	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	
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		
	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 most oracles - 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	



Fight (Round no.):	4	Room:	2	Stage: 2	Problem no.:	9
Juror: L. GLOV		de	Sienati	ure: L	Cucoleru	

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.

- 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.: Hungayy 5	Rev.: Macoo 5	
Physics ±3 -2	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 0.15	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 .5	Opponent ±1 0.5	Reviewer ±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	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 fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial or	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer 5 d after IOC feedback and approved by EC on 2011-11-03	

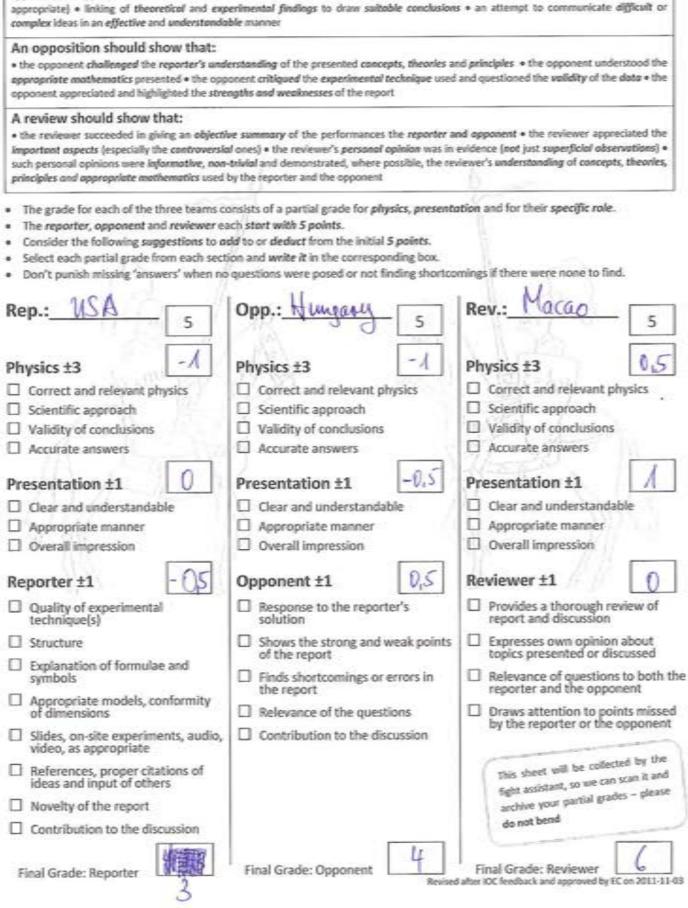


Scoring Guidelines	Fight (Rou Juror:	P-T
A report should include:		

Fight (Ro	und no.l: #4	Room: 2 Stage:	2 Problem no.: 9
		Signature:	

* 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 demanstrate the phenomena if appropriate) + linking of theoretical and experimental findings to draw suitable conclusions + an attempt to communicate difficult or

Rep.: USA 5	Opp.: Hungary 5	Rev.: Macao 5	
Physics ±3	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	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 - 05	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 th 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 partial grant	
☐ Contribution to the discussion		do not bend	
州部	4	First Control Bustoness (6)	



Scoring Guidelines	Fight (Round no.): 4 Room Junor: Yung-Yuun Hsu	n: 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 gother and tol findings to draw suitable conclusi	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's understandi oppropriate mathematics presented • the opponent or opponent appreciated and highlighted the strengths or	nitiqued the experimental technique us	
A review should show that: • the reviewer succeeded in giving an objective summ important aspects (especially the controversial ones) such personal opinions were informative, non-trivial a principles and appropriate mathematics used by the re-	 the reviewer's personal opinion was and demonstrated, where possible, the 	in evidence (not just superficial abservations) •
The grade for each of the three teams consists The reporter, opponent and reviewer each star Consider the following suggestions to add to or Select each partial grade from each section and	rt with 5 points. r deduct from the initial 5 points.	ntation and for their specific role.

Rep.: Andrew Mangabat 5 United States	Opp.: The Bandsoke 5	Rev.: Joyy: Xie 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 Quality of experimental	Opponent ±1 Response to the reporter's	Reviewer ±1 0
technique(s)	solution	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, aud video, as appropriate 	lio, Contribution to the discussion	
References, proper citations of ideas and input of others	Some Good & Questions. but Not dep in discuss.	This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parisis and
☐ Contribution to the discussion		do not bend



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 gother and record data (or demonstrate the phenomena if

An opposition should show that: • the opponent challenged the reporter's unde oppropriate mathematics presented • the oppopenent appreciated and highlighted the street	erstanding of the presented concepts, theories are onest critiqued the experimental technique used ngths and weaknesses of the report	nd principles • the opponent understood the and questioned the validity of the data • the
important aspects (especially the controversia	we summary of the performances the reporter as if ones) • the reviewer's personal apinion was in trivial and demonstrated, where possible, the re- by the reporter and the opponent	evidence (not just superficial observations) •
The reporter, opponent and reviewer ea Consider the following suggestions to or Select each partial grade from each secti		
hysics ±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
resentation ±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
eporter ±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 to 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 archive your partial grades – please
Novelty of the report Contribution to the discussion		do not bend
Contribution to the discussion Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Challenge problem # 5 accepted

Ccarina	Guid	olinos
Scoring	Guiu	CIIIICS

Fight (Round no.): 4 Room: 2 Stage: 3 Problem no.: 5

Juror: G. Jennings Signature: 20 Menu /

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, 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.

11	questions were posed or not finding shortco	Rev.: USA
Rep.: Hungary 5	Opp.: Macao 5	John Lukowski 5
Andras Lauko	Jingy XIE	John Cirkowski
Physics ±3	Physics ±3 +1	Physics ±3 +
Correct and relevant physics	E 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 +012	Presentation ±1 + ½
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	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 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 parcer or
☐ 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 2011-11-03



Fight (R	ound no.): _	4	Rooms	2	_St	age:	3	_ Problem no.: _	5
	7ENO								

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 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.: HU 5	Opp.:	Rev.: US 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 — - 1	☐ 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	☐ 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		
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 or	
☐ 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 2011-11-0	



ieht (Round no.):	4	Room:	2	Stage:	3	Problem no.:	5
uror L. Gio	der	uh	Sienatu	re: d	Da		

A report should include:

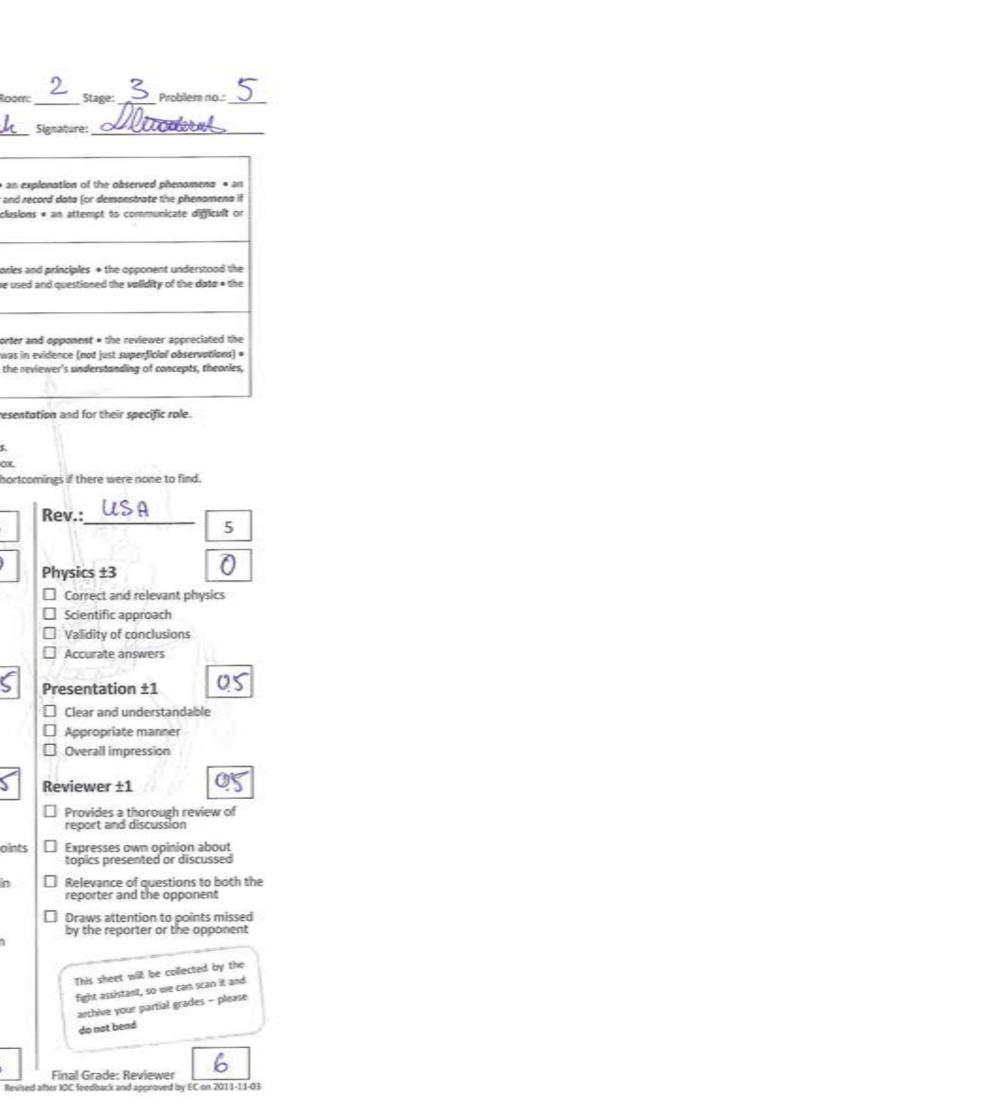
· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mothematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical 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 apponent challenged the reporter's understanding of the presented concepts, theories and principles . the apponent 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 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.: tungeny 5	Opp.: Maure 5	Rev.: USA 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 1	Opponent ±1 05	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, and grades - please
☐ Novelty of the report		archive your parties e
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6



Fight (Round no.): #4	Room: 2 Stage: .	3 Problem no.: 5
	Signature: (R	

A report should include:

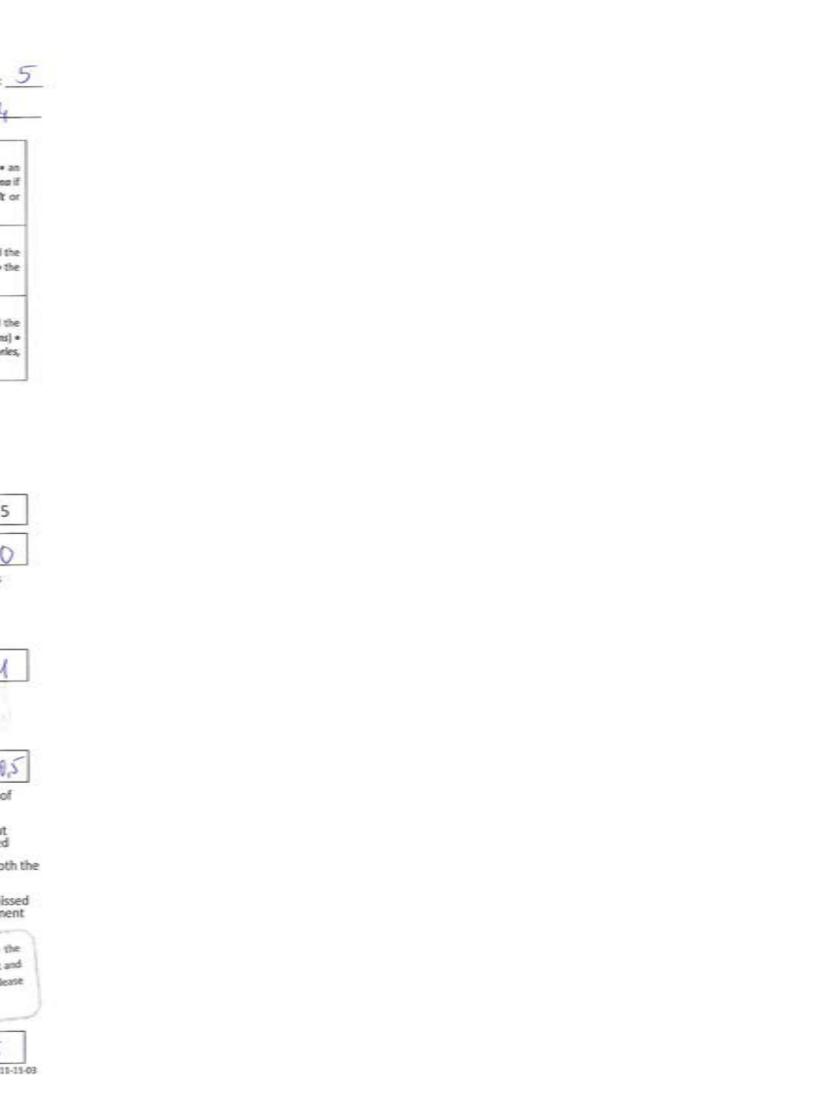
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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 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.: Mugary 5	Opp.: Macao 5	Rev.: USA 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	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	Relevance of guestions 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		arthive your parties of
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer 5



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

Juror: Yuly-Yuan Hsu Signature: Jung-Yuan Hsu

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.: András Laukó 5	Opp.: Tinyi Kie 5	Rev.: John. Lukowski
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
Quality of experimental technique(s) 700 yough. July Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions	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	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
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	Contribution to the discussion Final Grade: 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 Final Grade: Reviewer later IOC feedback and approved by EC on 2011-11-03



(1	2	3	5
Fight (Round no.):	Room: N St	age: Probl	\$1 no.:
Juror: Shehethi	₩OV Signature:	97	\rightarrow

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 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.: Hungary 5	Opp.: Macao 5	Rev.: USA 5
Physics ±3	Physics ±3 +1	Physics ±3
Correct and relevant physics Scientific approach	Correct and relevant physics Scientific approach	☐ Correct and relevant physics ☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 40.5	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 4.6.5	Reviewer ±1 +p.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 tight 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 6 1 after IOC feedback and approved by EC on 2011-11-03



Round: ____ Room: ____ Fight Assistants: Kurakowy Ashmong / Jim poin Suprijue.

	I	Stage 1		1	Stage 2		1	Stage 3			Stage 4	
Team	MACING	USA	Hungary	USA	Hungary	Macae	Hungary	MACOO	USA			
Juror	Rep	Opp	Rev	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Орр	Rev
Gavin Jennings	2	4	6	4	5	5	7	6	7			
Teparksorn Pengpan	6	7	6	7	6	7	7	5	7			
Leszek Gladczuk	2	4	6	3	5	5	8	6	6			
Rainer Reichle	2	4	5	3	4	6	7	5	5			
Yung - Yuan Hsu	3	5	6	3	4	5	4	7	7			
Andrey Shchetnika	6	3	5	4	4	4	8	7	b			
Acting Team Member	Chou Hou In	John Lukonski	Andrao Lauko	Andrew Mangabat	Tima Bandcki	Tingy: Xic	Andra's Lauko	Tingy: Xie	John Lukouski			
Rejected Problems												
Accepted Problem		13			9			5				

Signature Fight Assistant: K. polarony Double-checked with Scoring Guidelines by second Fight Assistant (signature): "Timpom Seen juc

Scoring Guidelin	Luror: TATYMALA G. S.	_ Signature: TOS
A report should include:		
 a presentation of the appropriate concepts application of appropriate mathematics • rea 	sonable experimental technique to gother and perimental findings to draw suitable conclus	explanation of the observed phenomena * an record data (or demanstrate the phenomena if liens * an attempt to communicate difficult or
	ponent critiqued the experimental technique w	s and principles • the opponent understood the sed and questioned the validity of the data • the
A review should show that:		
important aspects (especially the controversi	al ones) • the reviewer's personal apinion was •trivial and demonstrated, where possible, the	r and apponent • the reviewer appreciated the in evidence (not just superficial observations) • reviewer's understanding of concepts, theories,
Select each partial grade from each section of the punish missing 'ariswers' when not not not the punish missing 'ariswers' when not not not not not not not not not no	odd to or deduct from the initial 5 points. tion and write it in the corresponding box. o questions were posed or not finding shor Opp.:	Rev.: (SECURIAL VI) SQUARE LANGE SCAF 5 Physics ±3
Correct and relevant physics	Correct and relevant physics	☑ Correct and relevant physics + *
Scientific approach	Scientific approach	✓ Scientific approach + 0 55 ✓ Validity of conclusions + 0.25
Validity of conclusions Accurate answers	Validity of conclusions Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 0.25
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 +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 point of the report	ts 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 to 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

Final Grade: Opponent

 $\ \square$ Novelty of the report

Final Grade: Reporter

☐ Contribution to the discussion

planation of the observed phenomena * an cord doto [or demonstrate the phenomena if is * an attempt to communicate difficult or and principles * the opponent understood the and questioned the wolldity of the data * the and opponent * the reviewer appreciated the evidence [not just superficial observations] * invited in the properties of concepts, theories, action and for their specific role. Rev: Scientific approach * 5 Physics ±3 Correct and relevant physics * * * * * * * * * * * * * * * * * * *	TOC.
s • an attempt to communicate difficult or and principles • the opponent understood the and questioned the volidity of the data • the and apponent • the reviewer appreciated the evidence [not just superficial observations] • fiewer's understanding of concepts, theories, attion and for their specific role. Rev: Socientific approach 0 0	Signature:
and opponent • the reviewer appreciated the evidence [not just superficial observations] • frewer's understanding of concepts, theories, ation and for their specific role. Rev: Scientific approach	cord data (or demanstrate the phenomena if
revidence [not just superficial observations] • frewer's understanding of concepts, theories, stion and for their specific role. Rev:	T. T. C.
Physics ±3 Correct and relevant physics + 9.15 Scientific approach + 0.25 Validity of conclusions + 0.25 Accurate answers Presentation ±1 Clear and understandable Appropriate manner Overall impression 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.	evidence (not just superficial observations) •
all cond	Physics ±3 Correct and relevant physics + 4.15 Scientific approach + 6.5 Validity of conclusions + 0.25 Accurate answers Presentation ±1. Clear and understandable Appropriate manner Overall impression Reviewer ±1 + 0.5 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

Scoring Guidelin	105 Juror: Loby 9 km	m: 3 Stage: 1 Problem no.:
application of appropriate mathematics • re	ts, theories and principles of the problem * an easonable experimental technique to gother and experimental findings to draw suitable conclusions duble manner	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's an appropriate mothematics presented • the opponent appreciated and highlighted the st	nderstanding of the presented concepts, theories pponent critiqued the experimental technique us	s and principles • the opponent understood the sed and questioned the validity of the data • the
important aspects (especially the contraver	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was on-trivial and demonstrated, where possible, the ed by the reporter and the opponent	in evidence (not just superficial abservations) •
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for physics, presence of start with 5 points. add to or deduct from the initial 5 points. action and write it in the corresponding box. no questions were posed or not finding short	
Rep.: Gech Rep. 5	Opp.: Australia 5	Rev.: Cermany 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
Quality of experimental	Response to the reporter's	Provides a thorough review of

A review should show that:		
	ve summary of the performances the reporter a	
Important aspects (especially the contraversion	of ones) • the reviewer's personal apinion was in trivial and demonstrated, where possible, the rev	evidence (not just superficial abservations) •
principles and appropriate mathematics used		neuer summersumming or concepts, meaning
bumpher and appropriate institutioner over	of or other to his on other	100
The grade for each of the three teams or	onsists of a partial grade for physics, presento	ntion and for their specific role.
The reporter, opponent and reviewer ex		
Consider the following suggestions to a	dd to or deduct from the initial 5 points.	1
Select each partial grade from each sect		
Don't punish missing 'answers' when no	questions were posed or not finding shortco	mings if there were none to find.
CID	1 + 0.	1-160
Rep.: Lzech Rep.	Opp.: Australia	Rev.: Germany
1 5	3	1 3
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	X N LES
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
Accurate answers	D Accurate districts	7/200
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
		7/28 13.7
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	LI 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	
		This sheet will be collected by the
 References, proper citations of ideas and input of others 		
		fight assistant, so use to archive your partial grades - please
☐ Novelty of the report		do not bend
Contribution to the discussion		DV III.
2		7
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer The Final Grade: Reviewer Final Grade: Revie

Scoring Guidelines	Juror: Church (80 Li Signature: Church (80 Li Signature: Church)
application of appropriate mathematics • reasonable e	s and principles of the problem • an explanation of the observed phenomena • an experimental technique to gother and record data (or demanstrate the phenomena if all findings to draw suitable conclusions • an attempt to communicate difficult or ner
An opposition should show that: • the opponent challenged the reporter's understandic appropriate mathematics presented • the opponent or opponent appreciated and highlighted the strengths on	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 nd weaknesses of the report
important aspects (especially the controversial ones)	nory of the performances the reporter and opponent • the reviewer appreciated the • the reviewer's personal opinion was in evidence (not just superficial observations) • nd demonstrated, where possible, the reviewer's understanding of concepts, theories, eporter and the opponent
	of a partial grade for physics, presentation and for their specific role. t with 5 points.

Consider the following suggestions to an Select each partial grade from each section. Don't punish missing 'answers' when no	ld to or deduct from the initial 5 points. on and write it in the corresponding box. questions were posed or not finding shortco	mings if there were none to find.
Rep.: Czech 5	Opp.: Austrilia 5	Rev.: German 5
Physics ±3	Physics ±3	Physics ±3 +1.5
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach
2 Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1 +4.5	Presentation ±1
1 Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
2 Overall impression	② Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 6 +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	topics presented or discussed Relevance of questions to both ti reporter and the opponent
Appropriate models, conformity of dimensions	the report 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, and erades – please
Novelty of the report		archive your parcer s
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 2011-13-



Scoring	GILLIO	0	Inpo
Scoring	Guiu		IIICS

ight (Round no.):	4 Roo	mc 3	Stage:	1	Problem no.:	3
uror: Astaslyk		Signat		B.A	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 abserved 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 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.: Gech les 5	Opp.: Australia 5	Rev.: Garmany 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 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 AB 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
□ Novelty of the report		anchive your parrier gr
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer 7



	Fight (Round no.): 4 Room:	3 Stage: Problem no.: 3
Scoring Guidelines	S Juror J. BALLOMBI	100
A report should include: • a presentation of the appropriate concepts, the application of appropriate mathematics • reasons appropriate] • linking of theoretical and experis complex ideas in an effective and understandable.	ible experimental technique to gother and re- nental findings to draw suitable conclusion:	cord data (or demonstrate the pnenomena ii
An opposition should show that: • the opponent challenged the reporter's underst appropriate mathematics presented • the oppone opponent appreciated and highlighted the strength	nt critiqued the experimental technique used	nd principles • the opponent understood the and questioned the validity of the data • the
A review should show that:		
the reviewer succeeded in giving an objective s important aspects (especially the controversiol or such personal opinions were informative, non-triv principles and appropriate mathematics used by t	nes) • the reviewer's personal apinion was in vial and demonstrated, where possible, the re-	evidence (not just superficial abservacions) *
The grade for each of the three teams core	ाः। Sts of a partial grade for physics, present	ation and for their specific role.
The reporter, opponent and reviewer each Consider the following suggestions to add Select each partial grade from each section Don't punish missing 'ariswers' when no qu	stort with 5 points. to or deduct from the initial 5 points. and write it in the corresponding box.	
Rep.: CLECHO 5	pp:: AUSTELIA 5	Rev.: GCANA 5
Physics ±3 Correct and relevant physics	hysics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
The state of the s	Scientific approach	Scientific approach
The Validity of conclusions A The	3 Validity of conclusions	The aligity of conclusions
Accurate answers TOT	Accurate answers	Accurate answers
2 10 10	Presentation ±1	Presentation £1, +0.5
THE SCHOOL STATE OF THE STATE O		Cleer and understandable
Clear and understandable Appropriate manner	Clear and understandable Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 + Ø-5	Reviewer ±1 8 6 0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	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 igless 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 o
————Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer ed after IOC feedback and approved by EC on 2011-11-08

Fight (Round no.): 4	Room:	Stage: 1	Problem no.: 3
luror: CKAINGOT	Sign	nature: 15	n in

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:

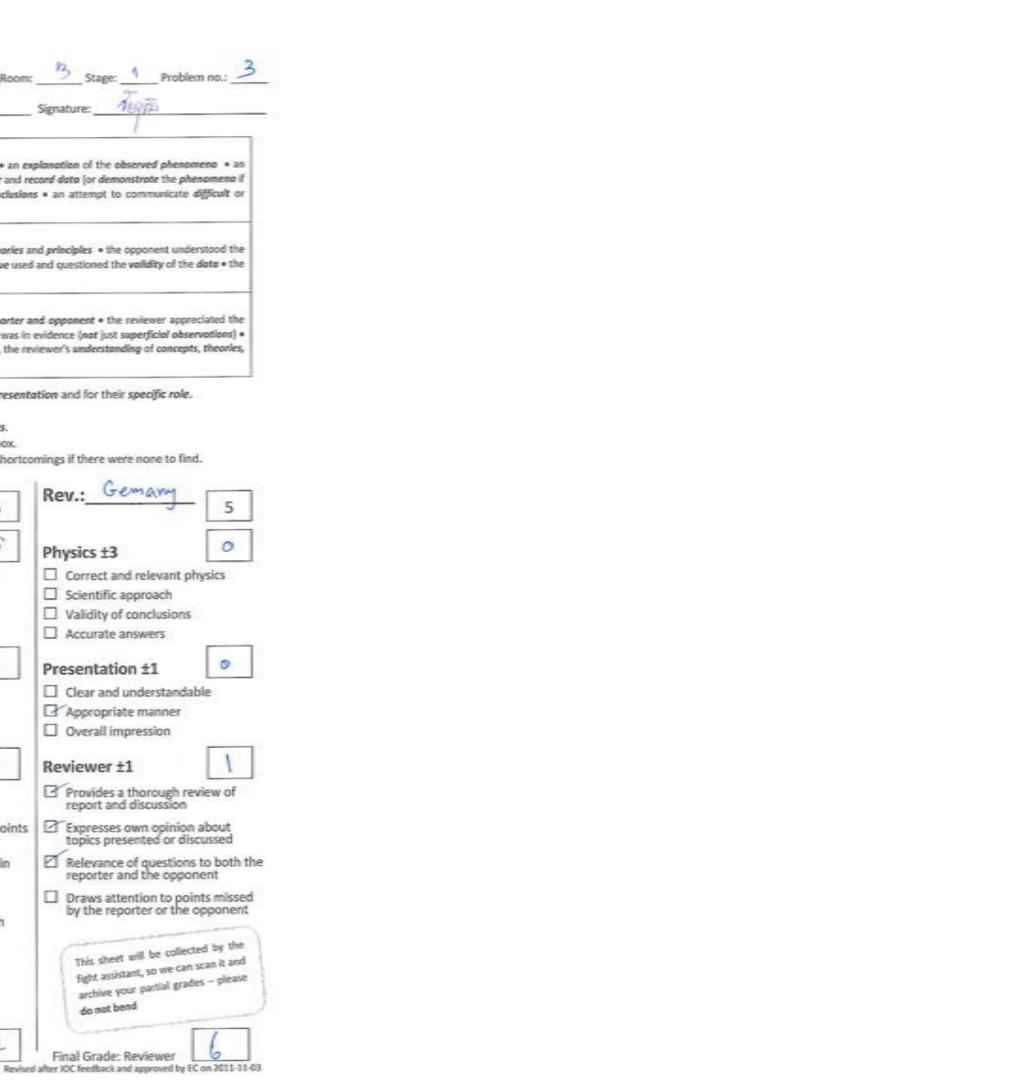
 the apparent challenged the reporter's understanding of the presented concepts, theories and principles * the apparent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 stort 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.: Czech Daniel Rychlý 5	Opp.: Australia 5	Rev.: Gemany 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 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 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 pareer a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent.	Final Grade: Reviewer



Scoring	(-IIII	P	lines
Jeorning	Oulu	-	IIICS

Fight (Round no.): 4	Room:		
auror: TRTyPeVA	6.5	Signature: 105	

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 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.

	Heberth Lox 5	Ann - Ketherin Erech 5	FANCE (RECEIVE 5
	Physics ±3	Physics ±3	Physics ±3 +0.5
	Correct and relevant physics -0.25	Correct and relevant physics	☐ Correct and relevant physics
	Scientific approach = 0.1%	☑ Scientific approach	Scientific approach
	☑ Validity of conclusions - 0.5	☐ Validity of conclusions	☐ Validity of conclusions
	Accurate answers . 0 15	Accurate answers	☐ Accurate enswers
	Presentation ±1 0	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 6 40.5
.02	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
02	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 sight assistant, so we can scan it and
	☐ Novelty of the report		archive your partial 6
	☐ Contribution to the discussion		do not bend
	7	[[
	Final Grade: Reporter 3	Final Grade: Opponent	Final Grade: Reviewer 6 6 after IOC feedback and approved by EC on 2011-11-03

Scoring Guidelin	Fight (Round no.): 4 Room	nc 3 Stage: 2 Problem no: 1
Scoring Galacini	Juron Lokey Sher	Signature:
application of appropriate mothematics • rea	sonable experimental technique to gother and perimental findings to draw suitable conclusi	explanation of the observed phenomena * an record data (or demonstrate the phenomena if ons * an attempt to communicate difficult or
An opposition should show that: * the opponent challenged the reporter's and appropriate mathematics presented * the opp apponent appreciated and highlighted the street	conent critiqued the experimental technique us	and principles • the opponent understood the ed and questioned the validity of the data • the
important aspects (especially the controversion	of ones] • the reviewer's personal opinion was -trivial and demonstrated, where possible, the	r and opponent * the reviewer appreciated the in evidence (not just superficial observations) * reviewer's understanding of concepts, theories,
 Select each partial grade from each sect 	och start with 5 points. dd to or deduct from the initial 5 points. sion and write it in the corresponding box. o questions were posed or not finding short Opp.:	comings if there were none to find.
Physics ±3 -2	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 point	s 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 reporter and the opponent
Appropriate models, conformity of dimensions	the report 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
☐ Novelty of the report		archive your partial grant
Contribution to the discussion		do not bend

Final Grade: Opponent

Room	3 Stage: 2 Problem no: 17 Signature:
r and rec	alonation of the observed phenomena * an condition data (or demonstrate the phenomena if it is an attempt to communicate difficult or
	and questioned the validity of the data + the
was in a	nd opponent * the reviewer appreciated the evidence (not just superficial observations) * iever's understanding of concepts, theories,
resenta ts.	tion and for their specific role.
shortcor	Rev.: (>ech 5
	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
2	Presentation ±1
6	Reviewer ±1 O
points	Provides a thorough review of report and discussion Expresses own opinion about
in	topics presented or discussed Relevance of questions to both the reporter and the opponent
n	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
Revised	Final Grade: Reviewer Saher IOC feedback and approved by EC on 2011-11-03

Scoring Guideli	nes Fight (Round no.):		- 1	Problem no.:
A report should include: • a presentation of the appropriate conce application of appropriate mathematics • appropriate} • linking of theoretical and complex ideas in an effective and understo	reasonable experimental technique to experimental findings to draw suito	gother and record	data (or demonstrate	the phenomena if
An opposition should show that • the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the	understanding of the presented conce opponent critiqued the experimental t	technique used and		
A review should show that: • the reviewer succeeded in giving an obj important aspects (especially the control such personal opinions were informative, principles and appropriate mathematics of	ersial ones) • the reviewer's personal one-trivial and demonstrated, where p	opinion was in evide	ence (not just superfic	cial observations) •
The grade for each of the three tean The reporter, opponent and reviewe Consider the following suggestions t Select each partial grade from each Don't punish missing 'answers' where	er each start with 5 points. to add to or deduct from the initial section and write it in the correspo	5 points. nding box.		
Rep.:5	Opp.:	- 5 R	ev.:	5
Physics ±3 +1	Physics ±3	+(P	hysics ±3	+0
Correct and relevant physics	Correct and relevant of	wsics F	Correct and rele	vant physics

Rep.:5	Opp.:5	Rev.: 5
Physics ±3	Physics ±3 +[Physics ±3 +45
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics ☐ Scientific approach
Scientific approach Validity of conclusions	Scientific approach Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	Accurate answers
Presentation ±1 0	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	Opponent ±1	Reviewer ±1 46.5
Quality of experimental +6 technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak point:	s Expresses own opinion about
Explanation of formulae and symbols	Finds shortcomings or errors in	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
Slides, on-site experiments, audi video, as appropriate	o, 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		do not bend



	3	
application of appropriate mathematics • reas	theories and principles of the problem * an ex- sonable experimental technique to gother and re- erimental findings to draw suitable conclusions ble manner	cord data (or demonstrate the phenomena if
An opposition should show that:		
	erstanding of the presented concepts, theories ar onent critiqued the experimental technique used ngths and weaknesses of the report	
important aspects (especially the controversion	we summony of the performances the reporter as of ones) • the reviewer's personal apinion was in trivial and demonstrated, where possible, the rev by the reporter and the opponent	evidence (nat just superficial abservations) •
 The reporter, opponent and reviewer es Consider the following suggestions to a Select each partial grade from each sect 	dd to or deduct from the initial 5 paints.	
Rep.: Australia 5	Opp.: Germany 5	Rev.: Occol less. 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	Reviewer ±1 4 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 guestions to both the
□ Appropriate models, conformity of dimensions	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
Novelty of the report		archive your parvar a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer I after IOC feedback and approved by EC on 2011-11-03

ight (Round no.):	Room:	3	Stage:	2	Problem no.:	17
CHAINOOT		Signatu	re-	FEDT	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 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 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, 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.

Rep.: 5	Opp.: Am-Kathrin 5	Rev.: Czech 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ 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 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 material grades – please
☐ Novelty of the report		archive your partial si-
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6 Revised after IOC feedback and approved by EC on 2011-11-0:



6-0	oring	0		-1	2	-
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200	reserve	60	Pd t Pd	Ser E	588	60

	11		1		2		17
ght (Round no.);	4	_Room:	0	Stage	1	Problem no	-1/
mr. J. 600	Con	nBP	Sionati	ine:	2	- 60	

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 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 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 summory 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.: 41STRALIA 5	Opp.: GERMANY 5	Rev.: CZECH PEP 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	Apgeopriate manner
─☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 +0.5	Reviewer ±1 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 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
D-Novelty of the report		archive your parties graves
Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03.



Scoring	Guidelines
Scoring	Guideline

	1.		P		9			1
Fight (Round no.):	7	Room:	>	Stage:	>	Problem no	4	0
wor Lake	19/4	W s	Signatur	ne:	UK	ark		

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 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, 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.: Germ. 5	Opp.: Bech 5	Rev.: Austral 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 +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 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 light assistant, so we can scan it and
☐ Novelty of the report		archive your parum s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer at the inches i



Scoring	GIIIIdo	linoc
Scoring	Juluc	IIIICS

Fight (Round no.):	4_	Rooma	_3	_Stage:	3	Problem no.: _	6
luror: TATYANJA	6	5	Signatu	re:_Ta	45	4	

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.

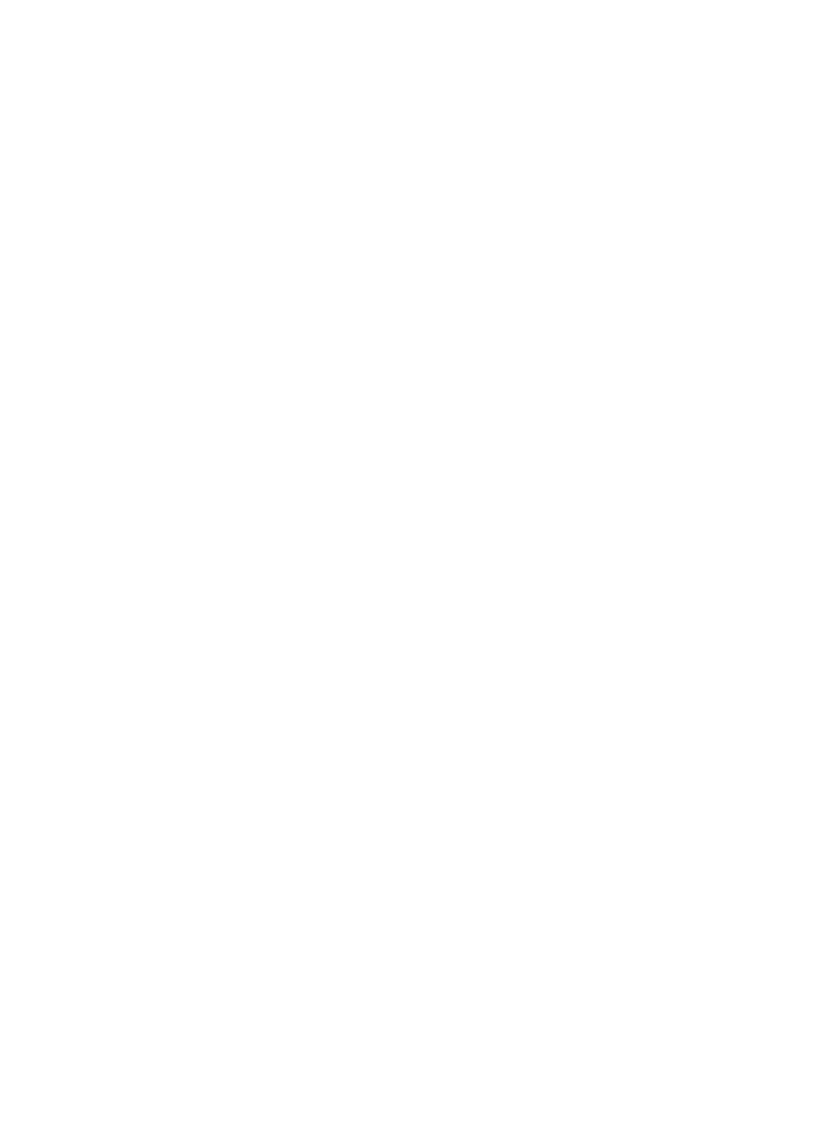
- · The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, opponent and reviewer each stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- Select each partial grade 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.: GERNAN 5	Opp.: CRECH SERVICE 5	Rev.: AUSTERIA 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics +025	Physics ±3 +05 Correct and relevant physics +2.5
Scientific approach 40 14	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers - 0 15	Accurate answers -0.14	☐ 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 0.25	Reviewer ±1 8 40.5
Quality of experimental technique(s) +0.2	Response to the reporter's solution - 0.2 5	Provides a thorough review of report and discussion
Structure + 0 2	Shows the strong and weak points of the report	Expresses own opinion about + 0.25 topics presented or discussed
Explanation of formulae and symbols - Q. 2.	☐ Finds shortcomings or errors in	Relevance of questions to both the +025
Appropriate models, conformity of dimensions LACK OF - 01	☐ Relevance of the questions +0 15	☐ 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 - 0-1		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 by
☑ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer 6



Scoring Guidelines	Fight (Round no.): 4 Room: 3 Stage: 3 Problem no.: Juror: Chara Stage: 3 Stage: 3 Problem no.:
application of appropriate mathematics • reasonab	ries and principles of the problem * an explanation of the observed phenomena * a ie experimental technique to gother and record data (or demonstrate the phenomena intol findings to draw switoble conclusions * an attempt to communicate difficult of anner
An opposition should show that: • the opponent challenged the reporter's understand appropriate mathematics presented • the opponent opponent appreciated and highlighted the strengths	ndling of the presented concepts, theories and principles • the apponent understood to critiqued the experimental technique used and questioned the validity of the data • th and weaknesses of the report
important aspects l'especially the controversial one	mmary of the performances the reporter and apponent • the reviewer appreciated the sign of the reviewer's personal apinion was in evidence (not just superficial observations) and demonstrated, where possible, the reviewer's understanding of concepts, theories reporter and the apponent

 Don't punish missing 'answers' when no 	ion and write it in the corresponding box. questions were posed or not finding shortco	mings if there were none to find.
Rep.: Gernany 5	Opp.: Czech 5	Rev.: Antalia 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 +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	Reviewer ±1 AB AS
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
- /		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		anchive your parcus so
☐ Contribution to the discussion		do not bend



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Fight (Round no.):	Roo	om: 5	_Stage:	Problem no.:	6
were Actorily	net:	Cionati	BI	2 .	
Section 11 The Add		- Albrido	are the		

* 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 learns 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.

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Rep.: ber many 5	Opp.: <u>C3ech</u> 5	Rev.: Hustralia 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 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	☐ 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
	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		archive your parties by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent 5	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



ight (Round no.):	4	Room:	3	_ Stage:	3	_ Problem no.: _6	
uror: CHAIW	00]		Sienati	ine:	र्वे व	S.	

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
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.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Genary 5	Opp.: Czech 5	Rev.: Australia 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ 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
 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 stan it and fight assistant, so we can see a 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 7



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

Juror: J. BALLON Signature: JR Bril

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 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 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.: GERMAN 7 5	Opp.: CZECH LEC 5	Rev.: ANSTRALIA 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 + 0.5
Clear and understandable	Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	☐ Øverall impression
Reporter ±1 +05	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 fight assistant, so we can scan it and
Novelty of the report	1 0	archive your parum or
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



		Stage 1			Stage 2			Stage 3			Stage 4	
Team Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
John Balcombe	4	6	6	5	6	6	7	4	6			
Chainoot Boonyasinimal	6	7	6	Ь	6	6	5	5	7			
Valiantsin Astashyski	5	Ь	7	5	5	5	6	5	5			
Choan Youg Li	4	7	8	6	7	6	7	6	6			
Tatyana Genalus Stankens	4	5	7	3	5	6	5	5	Ь			
Valentin Lobyshev	3	6	7	3	5	5	4	5	7			
Acting Team Member	Daniel Rychly	Elizabeth Cox	Jonas Landgraf	Elizabeth cox	Ann-Kathrin Raab	Pavla Beresova	Sina Jolla Hastong	Pets Sosna	Grace Rohn			
Rejected Problems												
Accepted Problem	3 Artifi	cial Muscle		17	Collee Cup		6 Mag	ius Glide	t			

Signature Fight Assistant: Janu Julimossi I

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

Rojrapa Tharamas

ight (Round no.):	Room:_	4	Stage:	1	Problem no.:	
uno: OSTERLUSEN	5	ienati	une: 7. (A	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
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.

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Rep.: Morea 5	Opp.: Nan 5	Rev.: Followed 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 1015	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 10,US	Opponent ±1	Reviewer ±1 tas
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 mades - please
☐ Novelty of the report		anthive your parsial to
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer





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Scor	ing	Gu	Ia	eı	$m\epsilon$	25

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Fight (Round no.):	Room:	Stage:	Problem no.	:_(
wordlya Iuish		0	00	
luror: Mych 1412h	Knd zigua	ture:	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 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 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 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.: Korea 5	Opp.: IRAn 5	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 + 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 -0,25	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 partial grades
Contribution to the discussion	55	do not bend
Final Grade: Reporter 6	Final Grade: Opponent 6	Final Grade: Reviewer of after 100 feedback and approved by EC on 2011-11-69



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Scoring	Guid	elines
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Fight (Ro	ound no.):	4	Room: 4	Sta	ge: 1	Problem no.:	7
hime	Nirut		Sie	nature:	-	H)	

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 controversiol 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.: KR 5	Opp.:IR5	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 fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial glades
☐ 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



Fight (Round no.):	Room: 4	Stage:1	Problem no.:	(7
une Felber Ma	Welst Sien	ature by	C.	

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 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.: Kow 5	Opp.:	Rev.: 5
Physics ±3 +2	Physics ±3	Physics ±3
Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 0
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Appropriate manner ☐ Overall impression	Appropriate manner Overall impression
Reporter ±1 +95	Opponent ±1	Reviewer ±1 705
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 of the report	s 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, conformi of dimensions 	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, au video, as appropriate 	idio, 🖪 Contribution to the discussion	
References, proper citations o ideas and input of others	f	This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		authine Your barrier 9
☑ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer sed after IOC feedback and approved by EC on 2011-11-03



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ight (Round no.):	Roomc	Stage:	Problem no.: _	
nor: Andret Ko	Blan Ser	nature: K	to turbing	

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 controversiol 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.: Korea 5	Opp .: I ran Yasamin Masaumi	5	Rev.: Poland	5
Physics ±3 +05	Physics ±3	0	Physics ±3	44
☐ Correct and relevant physics	Correct and relevant ph	nysics	Correct and relevant ph	ysics
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers	W
Presentation ±1	Presentation ±1	0	Presentation ±1	0
☐ Clear and understandable	☐ Clear and understandab	ole	☐ Clear and understandab	ole
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner	
Overall impression	☐ Overall impression		☐ Overall impression	
Reporter ±1 -0.5	Opponent ±1	0	Reviewer ±1	0
Quality of experimental technique(s)	Response to the report solution	er's	Provides a thorough re- report and discussion	view of
☐ Structure	☐ Shows the strong and w	reak points	Expresses own opinion topics presented or disc	about
Explanation of formulae and symbols	of the report Finds shortcomings or e	arrenre in	Relevance of questions	
	the report	211013111	reporter and the oppor	
 Appropriate models, conformity of dimensions 	☐ Relevance of the questi	ions	☐ Draws attention to poin	its missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the disc	cussion	by the reporter or the o	
References, proper citations of ideas and input of others			This sheet will be collected fight assistant, so we can s	
☐ Novelty of the report			archive your partial grade	g - prease
☐ Contribution to the discussion			do not bend	
Final Grade: Reporter	Final Grade: Opponent	Smited	Final Grade: Reviewer Later IOC feedback and approved by EC	6



Fight (Round no.):	4	Room:	4	Stage	. /	Probl	em no.:	7
luror: Ming	Fen	9_	Signatu	ire:	M	ne	Feng	

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 posed or not finding shortcomings if there were none to find.

Rep.: Lopea 5	Opp.:lran5	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 +5.1	Presentation ±1	Presentation ±1 +05
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 to.5	Opponent ±1 + o.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
☐ Novelty of the report		archive your parties are
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent.	Final Grade: Reviewer 7



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Section	S010001	11166

ight (Round no.):	Room:	4	Stage:	2	Problem no.: 4	
uror: Osterwien		Sienatu	ine: Ŧ	0	hum	

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.: 3000 5	Opp.: Poland 5	Rev.: Morea 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 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 7	Final Grade: Reviewer falter IOC feedback and approved by EC on 2001-11-03



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Fight (Round no		loom:	_Stage: <	Problem n	0: 1
luror: // QCI	luishe	VG_ Signatu	rre. Ul	-Ca	

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 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.: TRan 5	Opp.: Poland 5	Rev.: KORBA 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	① Overall impression
Reporter ±1	Opponent ±1 +0.75	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, and sendes - please
Novelty of the report		archive your partial ar-
- Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent	Final Grade: Reviewer 6



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Fight (Round no.):	4	Room: 4	Stage:	2	Problem no.:	4
Juror: Niryt		Signal	ture:	Ju	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 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 superficiol 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.:_ 1R 5	Opp.:f05	Rev.:_ KR 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 light 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 4	Final Grade: Opponent 7	Final Grade: Reviewer d after IOC feedback and approved by EC on 2001-11-03



Fight (Round no.): 4	Room: 4	Stage: 2	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
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.: Jan 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 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 40,5	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 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 seed erades - please
☐ Novelty of the report		archive your parties gr
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6 d after IOC feedback and approved by EC on 2011-11-0



Fight (Round no.):	Room:	4	Stage:	5	Problem no.:	4
wor: Andrei Kr	Blon s	Sienat	ure:			

A report should include:

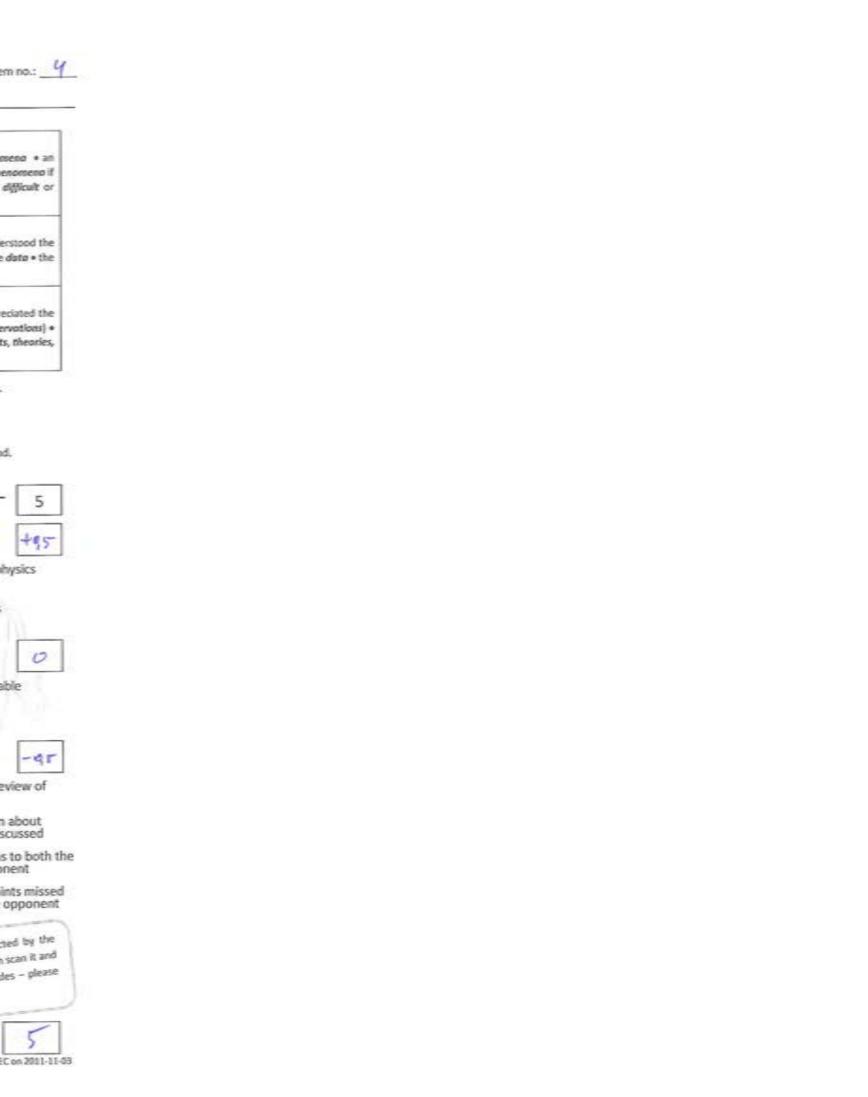
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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

- 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 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.:	Opp.: Polous	Rev.: Korea 5		
Anolsta Aldullani 5	Radost Wasshings 5	SeBeau Lee		
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 0	Opponent ±1	Reviewer ±1 -4r		
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 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		
☐ Novelty of the report		archive your partial grades		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer ed after IOC feedback and approved by EC on 2011-11-03		



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000	11119	0010	0111100

Fight (Round no.):	1	Rooms	4	Stage:	>	Problem no.: 4
Juror: Ming	Fent		Signatu	re:	dr	by Toy

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, 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.: Iran 5	Opp.: Poland 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 = 0.1	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 +0-5
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 point of the report	ts Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and		☐ Relevance of guestions 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
☐ Novelty of the report		archive your partial great
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer 6



right (Round no.):	Room:	4	Stage:	3	Problem no.:	9	
umr ("STERLILIER				-	900		

A report should include:

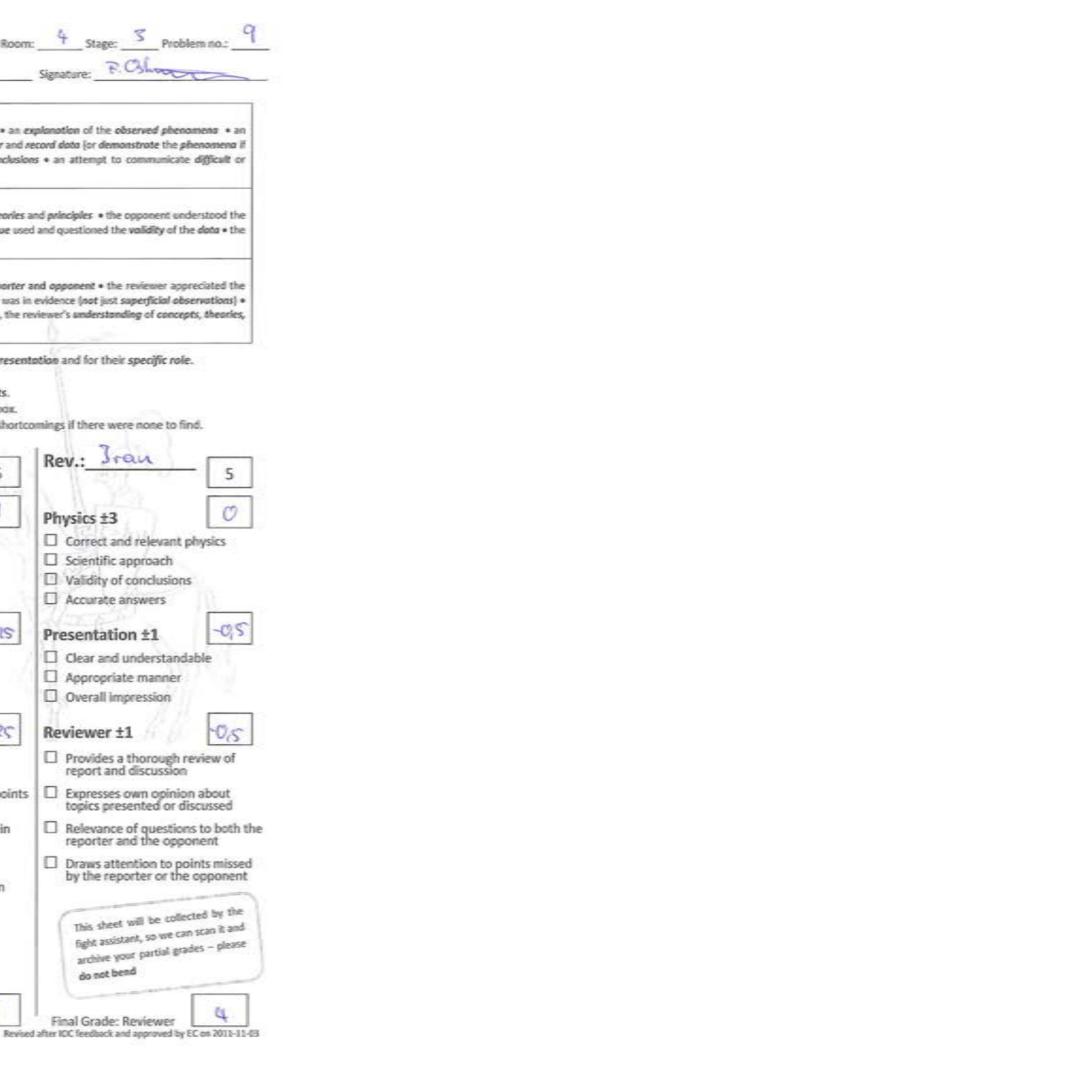
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data for demonstrate the phenomena if appropriate) . Inling of theoretical 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 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.: Poland 5	Opp.: Morea 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 10,85	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1 075	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 fight assistant, so we can stan it and fight assistant, so we can stan it and
☐ Novelty of the report		archive your partial grant
☐ Contribution to the discussion		do not bend
Sinal Crades Beneater	Final Grade: Onnonent 6	Final Grade: Reviewer 4





Fight (Round no.): 4 Room: 4 Stage: 3 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 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.: Poland 5	Opp.: KORBA 5	Rev.: _ Ran 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 +0,5	Presentation ±1	Presentation ±1 -0,25
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	☐ 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 light assistant, so we can scan it and
□ Novelty of the report		archive your parusi s
Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Scotting Guinelli	ring Guidelines
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Fight (A	ound no.]: _	4	Room: _	4	_Stage:	3	Problem no.: 9
Juror:	Nirut		5	ignat	ure:	1/10	t

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 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, 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.: 10 5	Opp.:KR	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
☐ 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 mades - please
☐ Novelty of the report		archive your parcial e
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6



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96611	119	O 00	1000		60

Fight (Round no.):	A Room	m: 4 _ s	itage: 3	_ Problem no.:	
over Pollar			- 1		

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 apparent * the reviewer appreciated the
important aspects (especially the contraversial 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.: Robert 5	Opp.: Koren 5	Rev.: 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	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 -9,5	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	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		arthive your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6



Fight (Round no.): _	4	_Room: _	4	Stage:	3	Problem no.: 9	
Audra							

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 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.: Poland	Opp.: Votes	Rev.: Dran
Madeit Coalmin	Ahn Cleang. Every 5	Austr Kesselu Elect
Physics ±3	Physics ±3	Physics ±3 +7
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 +0,1	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
7. <u>12.</u>	the report	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 to
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent	Final Grade: Reviewer



Scoring Guidelines	Fight (Round no.): 4 Room: 4 Stage: 3 Problem no.: 1 Junor: Ming Feng Signature: Ming Keng
application of appropriate mothematics • reasonable	es and principles of the problem * an explanation of the observed phenomena * an experimental technique to gother and record data (or demanstrate the phenomena if tol 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 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 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.: Korea 5	Rev.: Zgran 5	
Physics ±3	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	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 40.5	Reviewer ±1 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 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 grant	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer	



9

Round: 4 Room: 4 Fight Assistants: Room Phinique complian

1		Stage 1			Stage 2			Stage 3			Stage 4	
Team	Vor	18	Pol									
Juror	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev
Florian Ostermier	Ь	6	7.	4	7	7	5	6	4			
Olga Inisheva	Ь	Ь	7	3	8	Ь	7	7	6			
Niruf Pussadee	7	6	6	1	7	6	Ь	7	6			
Zakhar Malzelis	8	7	7	4	8	6	5	6	6			
Andrei Klishin	5	5	6	4	Ь	5	3	7	6			
Ming Feng	7	6	9	5	7	6	5	6	5			
Acting Team Member	Jiwan Ham	Yasamin M.	Anna Wald	Anabita Abdollahi	Radost W.	SeBeom Lee.	graf oust,	W See	, 500 mg			
Rejected Problems	No. 6						16	2				
Accepted Problem	No. 7			No.4 Li	iquid film	motor.		9	0			

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



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Fight (Ro	und no.):	4 80	om: 5	Stage:	Problem no.:	0
luror:	FS	ON 6	Signat	ure:	Sony	_

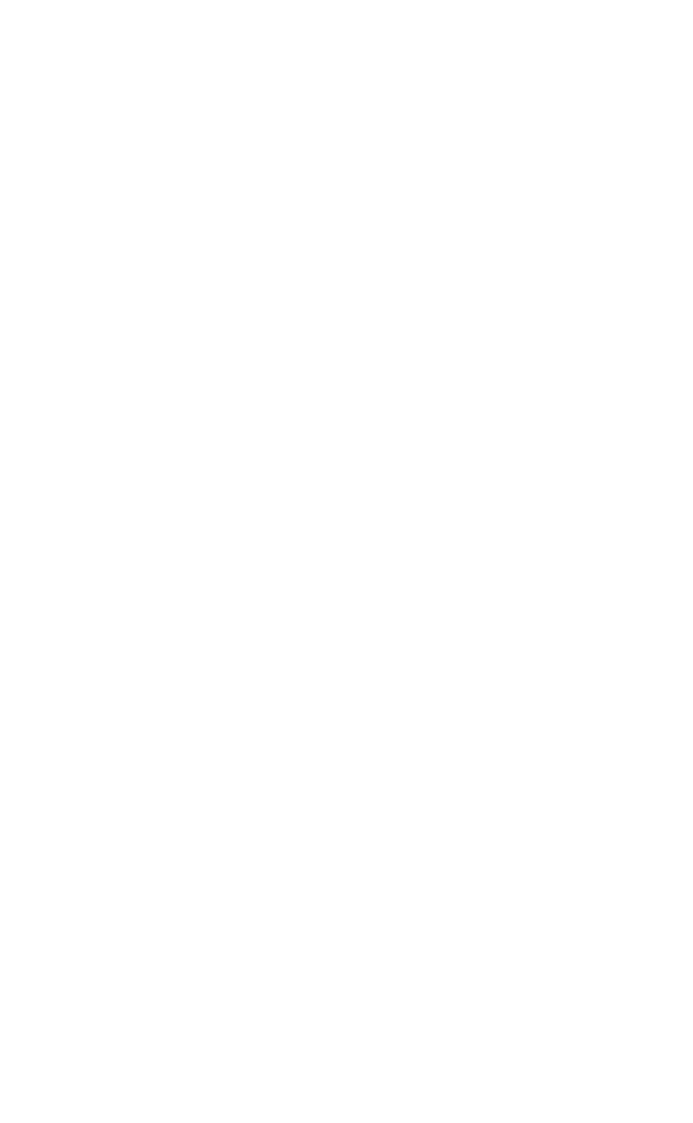
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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.: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	
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 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 gran	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 7 d after IOC feedback and approved by EC on 2011-11-03	



Fight (Round no.):	4	Room:	5	Stage:	Problem no.: 10
time Michael					

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.: Austria 5	Opp.: Kenya 5	Rev.:	
Physics ±3 -0.2	Physics ±3	Physics ±3 + 0.9	
☐ 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 0.3	Presentation ±1 0	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 0.2	Opponent ±1 0.1	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 to 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 grant	
☐ Contribution to the discussion	G	do not bend	
Final Grade: Reporter 5	Final Grade: Opponent 4	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-08	



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ight (Round no.):	4 Roo	m 5	Stage:	Problem no.:	10
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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.: KE	5	Rev.: LIK	5	
Physics ±3 -0.5	Physics ±3	0	Physics ±3	0.5	
☐ Correct and relevant physics	Correct and relevant physics	s	☐ Correct and relevant phy	/sics	
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers	Vi	
Presentation ±1	Presentation ±1	0	Presentation ±1	٥	
☐ Clear and understandable	☐ Clear and understandable		☐ Clear and understandab	le	
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner		
Overall impression	☐ Overall impression		Overall impression		
Reporter ±10.7	Opponent ±1	-1	Reviewer ±1	0.5	
Quality of experimental technique(s)	Response to the reporter's solution		Provides a thorough revi report and discussion	iew of	
☐ Structure	Shows the strong and weak of the report	points	Expresses own opinion a topics presented or discr	bout	
☐ Explanation of formulae and					
symbols	Finds shortcomings or error the report	rs in	Relevance of questions t reporter and the oppone		
 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 light assistant, so we can so		
☐ Novelty of the report			anchive your partial grade.	- please	
☐ Contribution to the discussion			do not bend		
Final Grade: Reporter 4	Final Grade: Opponent	4	Final Grade: Reviewer	6	



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ight (Round no.):	4	Rooms	5	Stage:	1	Problem no.:	10
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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, 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.: Austria 5	Opp.: Kenya 5	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	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 parcer or		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 7	Final Grade: Opponent 4	Final Grade: Reviewer 6 Safer IOC feedback and approved by EC on 2001-11-03		



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Fight (Round no.):	4	Room:	5	Stage:	1	_ Problem no.: _	16
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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).
 finking 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.: Austria 5	Opp.: Kenya 5	Rev.: //K 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
☐ 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 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 parvial p
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer



ight (Round no.): 1	- Recent	5	Stage:	I	Problem no.:	10.
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Revised after IOC feedback and approved by EC on 2011-11-05

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).
 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
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.: Austria 5	Opp.: Kenza 5	Rev.: 4K 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 -12	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner 4ins	Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±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	☐ 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	
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 paroar gr
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 3	Final Grade: Reviewer



Scoring Guidel	10.00	oom: 5 Stage: 2 Problem no.: 1
application of appropriate mathematics	reasonable experimental technique to gother i experimental findings to draw suitable cond	an explanation of the observed phenomena * an and record data (or demonstrate the phenomena if fusions * an attempt to communicate difficult or
	understanding of the presented concepts, theo opponent critiqued the experimental technique	ries and principles • the opponent understood the used and questioned the validity of the data • the
important aspects (especially the control	versiof ones] • the reviewer's personol opinion v non-trivial and demonstrated, where possible,	rter and opponent • the reviewer appreciated the ras in evidence (not just superficial observations) • the reviewer's understanding of concepts, theories,
Select each partial grade from each	to odd to or deduct from the initial 5 points section and write it in the corresponding by in no questions were posed or not finding st	K.
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics Scientific approach Validity of conclusions	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions
Accurate answers resentation ±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
teporter ±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 po	ints 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 reporter and the opponent

Appropriate models, conformity of dimensions

☐ 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

Clabel Daniel on b. M. San	5 Stage: 2 Problem no.: 16		
Fight (Round no.): 4 Room:	Stage: Z Protein no. 16		
Juron: + SONCT	Signature 4. Son		
theories and principles of the problem • an exp onable experimental technique to gother and re-	rord data (or demonstrate the phenomena if		
erimental findings to draw suitable conclusions ble manner	an attempt to communicate difficult or		
estanding of the presented concepts, theories are onent critiqued the experimental technique used optils and weaknesses of the report			
e summary of the performances the reporter as	nd apponent • the reviewer appreciated the		
ones) • the reviewer's personal opinion was in opinion was in opinion and demonstrated, where possible, the rev	evidence (not just superficial abservations) *		
y the reporter and the opponent	0		
nsists of a partial grade for physics, presente	tion and for their specific role.		
ch start with 5 points. Id to or deduct from the initial 5 points.			
on and write it in the corresponding box.			
questions were posed or not finding shortco	mings if there were notice to find.		
Opp.:5	Rev.: 5		
Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics		
Scientific approach	☐ Scientific approach		
☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions ☐ Accurate answers		
	1/250		
Presentation ±1	Presentation ±1		
☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandable ☐ Appropriate manner		
Overall impression	Overall impression		
Opponent ±1	Reviewer ±1		
Response to the reporter's	☐ Provides a thorough review of		
solution Shows the strong and weak points	report and discussion Expresses own opinion about		
of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the		
the report	reporter and the opponent		
Relevance of the questions	Draws attention to points missed by the reporter or the opponent		
☐ Contribution to the discussion	a but the		
	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 can sur- archive your partial grades – please		
	do not bend		
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Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2001-11-03		
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Fight (Round no.):	4	Room:)	Stage:	1	Problem no.:	0
1	-	- 11			1	11	
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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

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 controversiol 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.: Kenya 5	Opp.: 1. K 5	Rev.: Austria 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 0.8	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 parties o	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 3	Final Grade: Opponent Revise	Final Grade: Reviewer safter IOC feedback and approved by EC on 2011-11-03	



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Fight (Round no.): _	4	Rooms	5	Stage: 2	Problem no.:	
luror: LARS G					Soil	

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

- 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.: KE 5	Opp.:UK	Rev.: 4T 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	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
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, audi 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 parties or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent	Final Grade: Reviewer 7



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JUU	HHI	UUIU	CI	HILLS

Fight (Round no.):	4	Room:	5	Stage:	2	Problem no.:	16
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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 purish missing "answers" when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Kenya 5	Opp.: UK 5	Rev.: Austria 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	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 grades - please
☐ Novelty of the report		archive your partur b
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 2	Final Grade: Opponent 7	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03



Scoring Guideline	Sco	rina	Guid	lelines
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Fight (Round no.):	4	Room:	5 5	tage:	2	Problem no.:	16
laror: D. Ke.	the -	5	ienature:	1	De	alle	

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 volidity 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.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Keny 9 5	Opp.:	5	Rev.: Antria	5
Physics ±3	Physics ±3	C	Physics ±3	0
☐ Correct and relevant physics	☐ Correct and relevant ph	ysics	Correct and relevant ph	nysics
☐ 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	+1
☐ Clear and understandable	☐ Clear and understandab	le	☐ Clear and understandal	ble
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner	
Overall impression	☐ Overall impression		Overall impression	
Reporter ±1	Opponent ±1	6	Reviewer ±1	C
☐ Quality of experimental technique(s)	Response to the reporte solution	er's	Provides a thorough re report and discussion	view of
☐ Structure	Shows the strong and weak points of the report		Expresses own opinion topics presented or dis	about
 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 questi	ons	☐ 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 collect fight assistant, so we can	ed by the scan it and
- Novelty of the report			archive your parties are	St - brown
☐ Contribution to the discussion			do not bend	
Final Grade: Reporter 2	Final Grade: Opponent	6 Berline	Final Grade: Reviewer	6 con 2011-11-03



ight (Round no.): _	N. Sno	. 5	Stage I	Problem no.	. 16
TANOŠOVÁ			-73		

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.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

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Rep.: Kengli 5	Opp.: 4% 5	Rev.: Matria 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 —/	Présentation ±1	Presentation ±1	
☐ Clear and understandable	M/Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	Appropriate manner	Appropriate manner	
Overall impression	① Overall impression	Overall impression	
Reporter ±1 -1	Opponent ±1 +1/2	Reviewer ±1 +1/2	
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 he flings	of the report Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent	
☐ Appropriate models, conformity of dimensions Act Ministry	the report B. 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	



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application of appropriate mathematics • re	s, theories and principles of the problem * an ex asonable experimental technique to gother and re sperimental findings to draw suitable conclusion lable manner	cord data (or demonstrate the phenome
An opposition should show that: • the opponent challenged the reporter's un appropriate mathematics presented • the op opponent appreciated and highlighted the st	derstanding of the presented concepts, theories a ponent critiqued the experimental technique used rengths and weaknesses of the report.	nd principles • the opponent understood and questioned the volidity of the data •
important aspects (especially the controvers	tive summory of the performances the reporter a foll ones) • the reviewer's personal opinion was in a-trivial and demonstrated, where possible, the re d by the reporter and the opponent	evidence (nat just superficial abservation
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for physics, present each stort with 5 points. add to or deduct from the initial 5 points. ction and write it in the corresponding box. so questions were posed or not finding shorter	
Rep.: () K	Opp.:_ AU	Rev.:kN
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ 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 report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discusse
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to b reporter and the opponent
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points m
Slides, on-site experiments, audio video, as appropriate	, Contribution to the discussion	by the reporter or the oppo
☐ References, proper citations of		This sheet will be collected by light assistant, so we can scan i
ideas and input of others		- col aradic - 9
Novelty of the report	1	fight assistant, so we can a archive your partial grades – p do not bend

Fight (Round no.):	4 Room:	5	Stage: 3	Problem no.:	9
luror Nichael	- 1	Signatu	ne: 1	74	-

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.K. 5	Opp.: Austria 5	Rev.: Kenya 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 0.4	Presentation ±1 0.3	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	
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 grant	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer 5	



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ight (Round no.):	4 Room	5	Stage:	3 Problem n	0: 9
ight (Round no.): _	Cialm	Signat	urec	a. Con	C.

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.: 0 K 5	Opp.:	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	Presentation ±1 0	Presentation ±1 6	
☐ 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 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 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	Final Grade: Opponent 5	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03	



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light (Round no.):	4	Room:	5	Stage:	3	Problem no.:	9
con Parana							

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important expects (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>UK</u> 5	Opp.: austria 5	Rev.: Kenya 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 parcus s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer Jahrs IDC feedback and approved by EC on 2011-11-03



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Fight (Round no.):	4	Room:	5	Stage:	3	Problem no.:	
luror: D. Kei					-	Willer	

* 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.:	Opp.: Pulsia 5	Rev.: Kery9 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 6	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	ints Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and 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		archive your partial glasses
☐ 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 to 2011-11-03



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light (Round no.): Room:	St	age:	Problem no.: _	-
wor. PANOSONA DAGHAF	Signature:		nu.	

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, 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.: 4K 5		Rev.: Fenya 5
Physics ±3	1 12.3	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
Reporter ±1 0	Opponent ±1	Reviewer ±1 6 -1/2
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 p of the report	points Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors the report	in Relevance of questions to both the reporter and the opponent
Appropriate models, conformit of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, au video, as appropriate	dio, Difficultion to the discussion	on
References, proper citations of ideas and input of others	6	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		archine your parties or
Contribution to the discussion	g	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 4



Round: 4 Room: 5 Fight Assistants: Wanch Cem Pausanat , Taweegak Chaigalchun

	1	Stage 1		1	Stage 2			Stage 3			Stage 4	
Team	Andria	Kenya	UK.	Konya	UK	Austria	UK	Anstra	Kmya			
Juror	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev
Fong Song	6	5	7	3	6	7	6	5	5			
Michael F. Smith	5	4	6	3	6	6	5	5	5			
Lars Gislen	4	4	6	3	7	7	8	5	5			
Zuzana Coculová	7	4	6	2	7	6	5	5	5			
Daniel Keller	5	3	6	2	6	Ь	5	5	4			
Dagmar Panosova	4	3	6	1	Ь	6	5	5	4			
Acting Team Member	Amir Dellali	Soushke Narabu	Dominic Doutsay	Xiong Zhuang	Dominic Dootson	Frank Rebecca	Sherry Xu	Seitz Iris	Nathan Antrobus			
Rejected Problems	~				nick len		_					
Accepted Problem	(10) Sin	ging Bode	s of grass	(P) M	et and	dark	9 Ho	vercraft				

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

Fight (Round no.):	4	Rooms	6	Stage:	1	Problem no.:	17
luror: Gefeer	lau	du	Signati.	ure:	Me	34	

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 controversiol 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.: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	X Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 -9 4	Presentation ±1	Presentation ±1
Clear and understandable	Dicear 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 point 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 or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer ed after IOC feedback and approved by EC on 2011-11-03



right (Round no.): 4 Room: 6 Stage: 1 Problem no.: 17
uror: Julian Ronachev Signature: 1 Romania

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 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 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.: Thiland 5	Opp.: Sweden 5	Rev.: New Zeoland 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 -03	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 0,2	Reviewer ±1 0,3
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	M 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
	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 partial grades
Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer Safter 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 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 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.

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 43	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
		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



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Fight (R	ound no.}:	4	Room: _	6	_Stage	1	Problem no	n:
lumor	M.H.	Valor	5	lenatu	ire:	m	mas	42

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.: Narowet 5	Opp.: Danje 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	Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and	of the report	Relevance of guestions 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		arthire your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer 6 t after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelin	Fight (Round no.): 4 Roo	mc 6 Stage: Popblem no.: 17 Signature: 4
application of appropriate mathematics + n	easonable experimental technique to gother and experimental findings to draw suitable conclus	explanation of the observed phenomena • an invectord data for demonstrate the phenomena if lines • an attempt to communicate difficult or
An opposition should show that: • the opponent challenged the reporter's a oppropriate mathematics presented • the opponent appreciated and highlighted the st	nderstanding of the presented concepts, theorie pponent critiqued the experimental technique u	s and principles • the opponent understood the sed and questioned the validity of the data • the
Important aspects (especially the controver	sial ones) • the reviewer's personal opinion was on-trivial and demonstrated, where possible, the	r and opponent • the reviewer appreciated the in evidence (not just superficial observations) • reviewer's understanding of concepts, theories,
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for physics, prese each stort with 5 points. add to or deduct from the initial 5 points. ection and write it in the corresponding box. no questions were posed or not finding shor Sweden	
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions
Presentation ±1 Clear and understandable Appropriate manner	Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression
Overall impression Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental	Response to the reporter's	 Provides a thorough review of

application of appropriate moth	nemotics • reas etical and exp	onable experimental technique to gother an erimental findings to draw suitable cancles	explanation of the observed phenomena • an direcord data (or demanstrate the phenomena if loss • an attempt to communicate difficult or
appropriate mothematics prese	reporter's undented • the opp		es and principles • the opponent understood the sed and questioned the validity of the data • the
important espects (especially the such personal opinions were info	ing an objective controversion	fones) • the reviewer's personal opinion was	or and opponent • the reviewer appreciated the in evidence (not just superficial observations) • reviewer's understanding of concepts, theories,
The reporter, opponent and Consider the following suggested the control of the Constant of the	d reviewer ea gestions to as om each secti	dd to or deduct from the initial 5 points. on and write it in the corresponding box. questions were posed or not finding shor Sweden	teomings if there were none to find.
lep.: Mack wif	5	Opp.: Mayel 5	Rev.: Jack Trafidge 5
hysics ±3	0	Physics ±3	Physics ±3
Correct and relevant ph Scientific approach Validity of conclusions Accurate answers	ysics	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
resentation ±1	0	Presentation ±1	Presentation ±1 +/
Clear and understandab Appropriate manner Overall impression	ole	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
eporter ±1	-/	Opponent ±1	Reviewer ±1 //
Quality of experimental technique(s)	1	Response to the reporter's solution	 Provides a thorough review of report and discussion
Structure		Shows the strong and weak poin	ts Expresses own opinion about topics presented or discussed
Explanation of formulae symbols	e and	of the report Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, co of dimensions	nformity	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experime video, as appropriate	ents, audio,	☐ Contribution to the discussion	by the reporter or the opponent
References, proper cita ideas and input of othe	tions 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 parties a
Contribution to the disc	cussion		do not bend
Final Grade: Reporter	4	Final Grade: Opponent 6	Final Grade: Reviewer 7 ised after IOC feedback and approved by EC on 2011-11-0

Scoring Guidelin	es suror: S. Syland	nc 6 Stage: 1 Problem no.: 17
application of appropriate mathematics • reas	ionable experimental technique to gother and erimental findings to draw suitable conclusi	explanation of the observed phenomena * an record data (or demonstrate the phenomena if ons * an attempt to communicate difficult or
	onent critiqued the experimental technique us	and principles • the opponent understood the ed and questioned the validity of the data • the
important aspects (especially the controversio	fones) • the reviewer's personal opinion was trivial and demonstrated, where possible, the	and opponent • the reviewer appreciated the in evidence (not just superficial observations) • eviewer's understanding of concepts, theories,
그 사람이 많은 가장 하는 것이 하는 것이 없는 것이 없는 것이 없는 것이 없는 것이 없는 것이 없다.	ch start with 5 points.	
Rep.: Thanand 5	Opp.: Sweden 5	Rev.: New Restand
Physics ±3	Physics ±3 +1	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	Presentation ±1 0	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 - 1/4	Opponent ±1	Reviewer ±1 + 1/2.

Rep.: Thanand 5	Opp.: Steden	— [5]	Rev.: New Yester	5
Physics ±3	Physics ±3	+1	Physics ±3	+1
Correct and relevant physics	☐ Correct and releva	nt physics	☐ Correct and relevant p	hysics
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusi	ons	☐ Validity of conclusions	
Accurate answers	☐ Accurate answers		☐ Accurate answers	N.
Presentation ±1	Presentation ±1	0	Presentation ±1	0
☐ Clear and understandable	☐ Clear and understa	indable	☐ Clear and understanda	ble
☐ Appropriate manner	☐ Appropriate mann	er	☐ Appropriate manner	
Overall impression	☐ Overall impression		Overall impression	
Reporter ±1 - 2	Opponent ±1	0	Reviewer ±1	+ 1/2
Quality of experimental technique(s)	Response to the re solution	porter's	Provides a thorough report and discussion	eview of
☑ Structure	Shows the strong a of the report	nd weak points	Expresses own opinion topics presented or dis	about
 Explanation of formulae and symbols 	Finds shortcoming the report	s or errors in	Relevance of question reporter and the oppo	s to both
 Appropriate models, conform of dimensions 	Relevance of the q	uestions	☐ Draws attention to poi	ints misse
Slides, on-site experiments, a video, as appropriate	udio, Contribution to the	discussion	by the reporter or the	
References, proper citations of ideas and input of others	é		This sheet will be collect light assistant, so we can	
☐ Novelty of the report			archive your partial great	les - pleas
☐ Contribution to the discussion	Č.		do not bend	(m) min - 200 m
Final Grade: Reporter	Final Grade: Opponer	. 6	Final Grade: Reviewer	7

Fight (Round no.): 4 Room: 6 Stage: 2 Problem no.: 5

Juror: Geleen Nandu Signature: 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 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 ph	rysics	Correct and relevant ph	ysics
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach	
☑ Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	7	☐ Accurate answers	1
Presentation ±1 +1	Presentation ±1	-Q1	Presentation ±1	
Clear and understandable	Clear and understandab	ole	☐ Clear and understandab	de
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner	
Overall impression	Overall impression		Overall impression	
Reporter ±1	Opponent ±1	-qs	Reviewer ±1	-
Quality of experimental technique(s)	Response to the reports solution	er's	Provides a thorough re- report and discussion	riew of
☐ Structure	☐ Shows the strong and w	reak points	Expresses own opinion topics presented or disc	about
 Explanation of formulae and symbols 	of the report Finds shortcomings or e	errors in	Relevance of questions reporter and the oppon	to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions		☐ Draws attention to poin	its missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion		by the reporter or the opponen	
References, proper citations of ideas and input of others			This sheet will be collected fight assistant, so we can see the second or and second o	ed by the can it and
Novelty of the report			archive your parcial a	5 - piease
☐ Contribution to the discussion			do not bend	
Final Grade: Reporter	Final Grade: Opponent	4	Final Grade: Reviewer	5 on 2011-11-03



Fight (Round no.): 4 Room: 6 Stage: 2 Problem no.: 5

Juror: Júlian Romacher Signature: J. Romanger

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.: Sweden 5	Opp.: New Zeoland	5	Rev.: Theiland	5
Physics ±3	Physics ±3	0	Physics ±3	0
☐ Correct and relevant physics	Correct and relevant physi	cs	Correct and relevant pl	nysics
Scientific approach	☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusions	☑ Validity of conclusions	- 11	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers		Accurate answers	18
Presentation ±1 0/2	Presentation ±1	0	Presentation ±1	0
Clear and understandable	☐ Clear and understandable	7	Clear and understanda	ble
☐ Appropriate manner	☐ Appropriate manner	- 20	☐ Appropriate manner	
☐ Overall impression	Overall impression	- 1	Overall impression	
Reporter ±1 0	Opponent ±1	0,2	Reviewer ±1	O
Quality of experimental technique(s)	Response to the reporter's solution		Provides a thorough re report and discussion	view of
☑ Structure	Shows the strong and wea	k points	Expresses own opinion topics presented or dis	about
☐ Explanation of formulae and	of the report	or in	☐ Relevance of guestions	
symbols	Finds shortcomings or erro the report	ars in	reporter and the oppor	
 Appropriate models, conformity of dimensions 	Relevance of the questions		☐ Draws attention to points misses	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discuss	sion	by the reporter or the	
 References, proper citations of ideas and input of others 			This sheet will be collect fight assistant, so we can	
□ Novelty of the report			archive your partial great	
☐ Contribution to the discussion			do not bend	
Final Grade: Reporter 5	Final Grade: Opponent	5 Revised	Final Grade: Reviewer after IOC feedback and approved by E	5 con 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 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 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.

Sep.:5	Opp.:5	Rev.: 5
hysics ±3	Physics ±3 +0.5	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
3 Scientific approach	☐ Scientific approach	☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
resentation ±1	Presentation ±1 +0.2	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
teporter ±1	Opponent ±1 +0.4	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 guestions 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		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 ar-
Contribution to the discussion		do not bend



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 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 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 reporter, opponent and reviewer ea Consider the following suggestions to a Select each partial grade from each sect Don't punish missing 'answers' when no	dd to or deduct from the initial 5 points.	213
Rep.: Hexader 5	Opp.: Tack	Rev.: North that 5
hysics ±3 +1	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
resentation ±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
eporter ±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 se can scan it and
Novelty of the report		archive your parum by
Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent	Final Grade: Reviewer After IOC feedback and approved by EC on 2011-11-03

	Fight (Round no.): 4 Room:	6 Stage: 2 Problem no.: 5
Scoring Guidelin	es Juror: YE YEO	Signature:
application of appropriate mothematics • reas	theories and principles of the problem * an exponsible experimental technique to gother and re- erimental findings to draw suitable conclusions ble manner	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's unde appropriate mathematics presented • the appropriate mathematics presented • the spread opponent appreciated and highlighted the stres	erstanding of the presented concepts, theories ar onent critiqued the experimental technique used ngths and weaknesses of the report	nd principles • the opponent understood the and questioned the validity of the data • the
important aspects (especially the controversia	we summary of the performances the reporter as of ones) • the reviewer's personal opinion was in trivial and demonstrated, where possible, the rev by the reporter and the opponent	evidence (not just superficial abservations) •
		mings if there were none to find. Rev.:
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 _/	Opponent ±1 / / / Response to the reporter's	Reviewer ±1 // // // Provides a thorough review of
technique(s) Structure Explanation of formulae and symbols	Shows the strong and weak points of the report Finds shortcomings or errors in	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	the report Relevance of the questions Contribution to the discussion	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		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: Opponent

Final Grade: Reporter

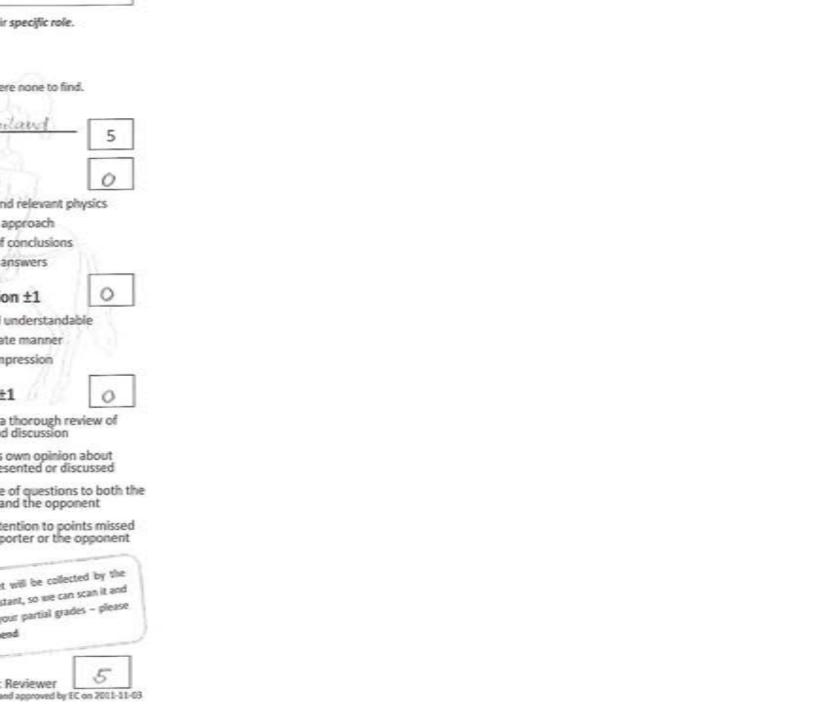
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Room: _ (Stage: Problem no.: ()	-00		
Sig	nature:	_		
an explor	ation of the observed phenomena • an			
and record	data (or demonstrate the phenomena if			
clusions • ;	an attempt to communicate difficult or			
	risciples • the opponent understood the questioned the validity of the data • the			
was in evid	opponent • the reviewer appreciated the lence (not just superficial observations) •			
the review	er's understanding of concepts, theories,			
	Constitution with the			
esentation	n and for their specific role.			
S.				
ox. hortcomin	gs if there were none to find.			
- lo	Thay and	c:		
"	Sev.: 5			
51				
10.0	hysics ±3			
	Correct and relevant physics Scientific approach			
	Validity of conclusions			
	Accurate answers			
/ D	resentation ±1			
	Clear and understandable			
	Appropriate manner			
C	Overall impression			
/ R	eviewer ±1 //			
	Provides a thorough review of report and discussion			
100				
oints L	Expresses own opinion about topics presented or discussed			
in [Relevance of questions to both the reporter and the opponent	he		
	Draws attention to points missed by the reporter or the opponent			
1				
	This sheet will be collected by the	1		
- 4	This sheet will be collected by fight assistant, so we can scan it and partial grades – please	1		
	fight assistant, so we can such archive your partial grades – please do not bend	3		
	DUSA			
	Final Grade: Reviewer			
Revised after	er IOC feedback and approved by EC on 2011-11-0	13		

Scoring Guidelines	Fight [Round no.]: 4 Room: 6 Stage: 2 Problem no.: 5
application of appropriate mathematics • reasonable	es 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 one
	fing 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 controversiol ones)	many of the performances the reporter and opponent • 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,

	a Auril
٠	The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
٠	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.

	5	Opp.: New teston	5	Rev.: Madard	5	
Physics ±3	0	Physics ±3	1/2	Physics ±3	0	
A- Correct and relevant pl	hysics	Correct and relevant physics		☐ Correct and relevant physics		
Z Scientific approach		☐ Scientific approach		☐ Scientific approach		
Validity of conclusions	100	☑ Validity of conclusions		☐ Validity of conclusions		
Accurate answers	37	☐ Accurate answers		☐ Accurate answers		
Presentation ±1	+1/2	Presentation ±1	+1/4	Presentation ±1	0	
☐ Clear and understanda	ble	☑ Clear and understandable		☐ Clear and understandable		
☐ Appropriate manner		☑ Appropriate manner		☐ Appropriate manner		
☐ Overall impression		☑ Overall impression		☐ Overall impression		
Reporter ±1	0	Opponent ±1	11/2	Reviewer ±1	0	
Quality of experimenta technique(s)	d	Response to the representation	orter's	Provides a thorough re- report and discussion	view of	
☑ Structure		Shows the strong and weak points of the report Expresses own opin topics presented or		Expresses own opinion topics presented or dis	about	
Explanation of formulae and symbols Appropriate models, conformity of dimensions		Finds shortcomings or errors in the report Relevance of the questions		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		This sheet will be o				This sheet will be collect fight assistant, so we can
☐ Novelty of the report			arthive your parties grant		es - presse	
☑ Contribution to the discussion				do not bend		



ight (Round no.): _	4 Rooms	6 Stage:	3 Probjem no.:	2
uror: Golceo		gnature:	15ty	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 summory 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.: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 +45	Reviewer ±1 -q<	
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 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, as we cades - please	
■ Novelty of the report		archive your parties a	
Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer 6 after IOC feedback and approved by EC on 2001-31-03	



Fight (Round no.):	4	Rooms	6 5	tage:	3	Problem no.: 12	
uror: Jalian 1							

A report should include:

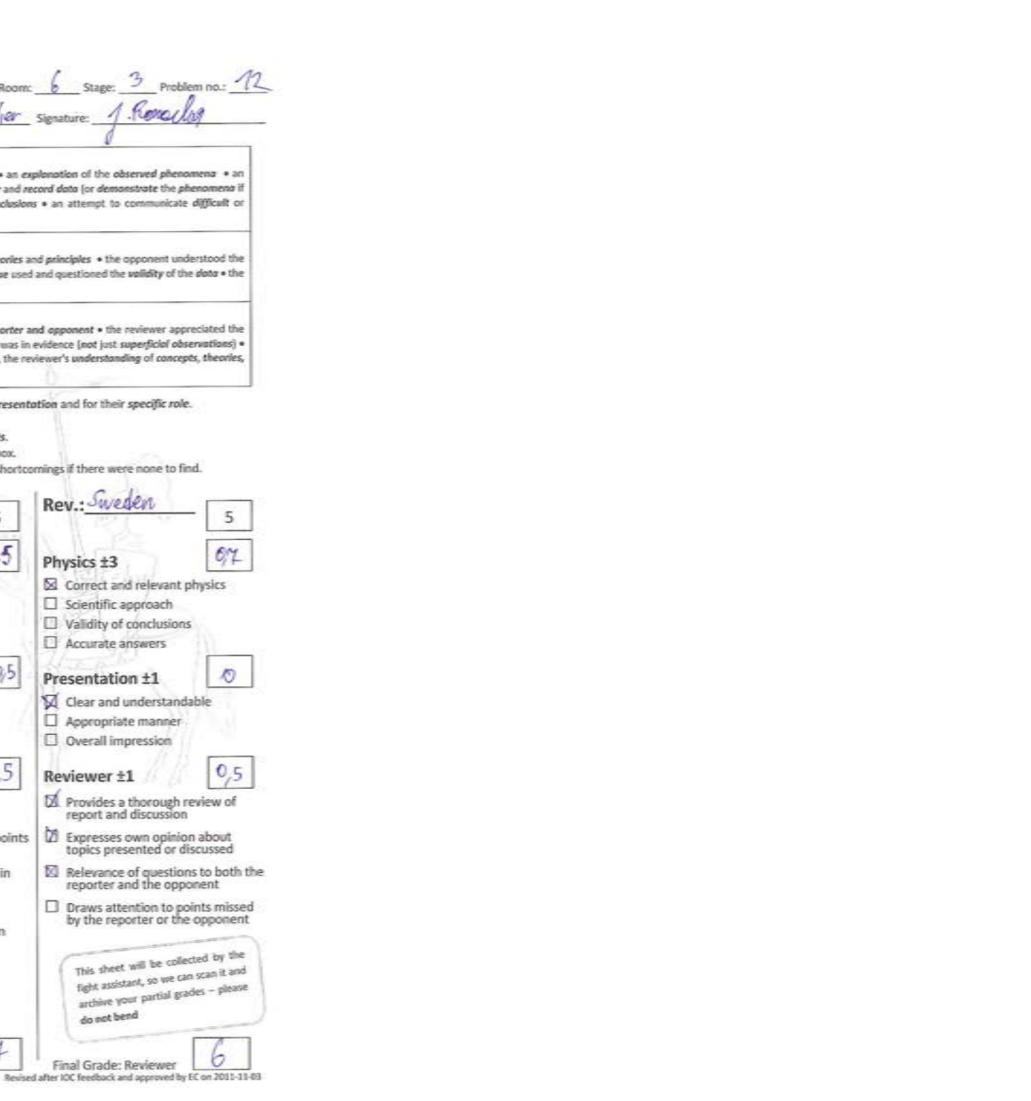
· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical 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:

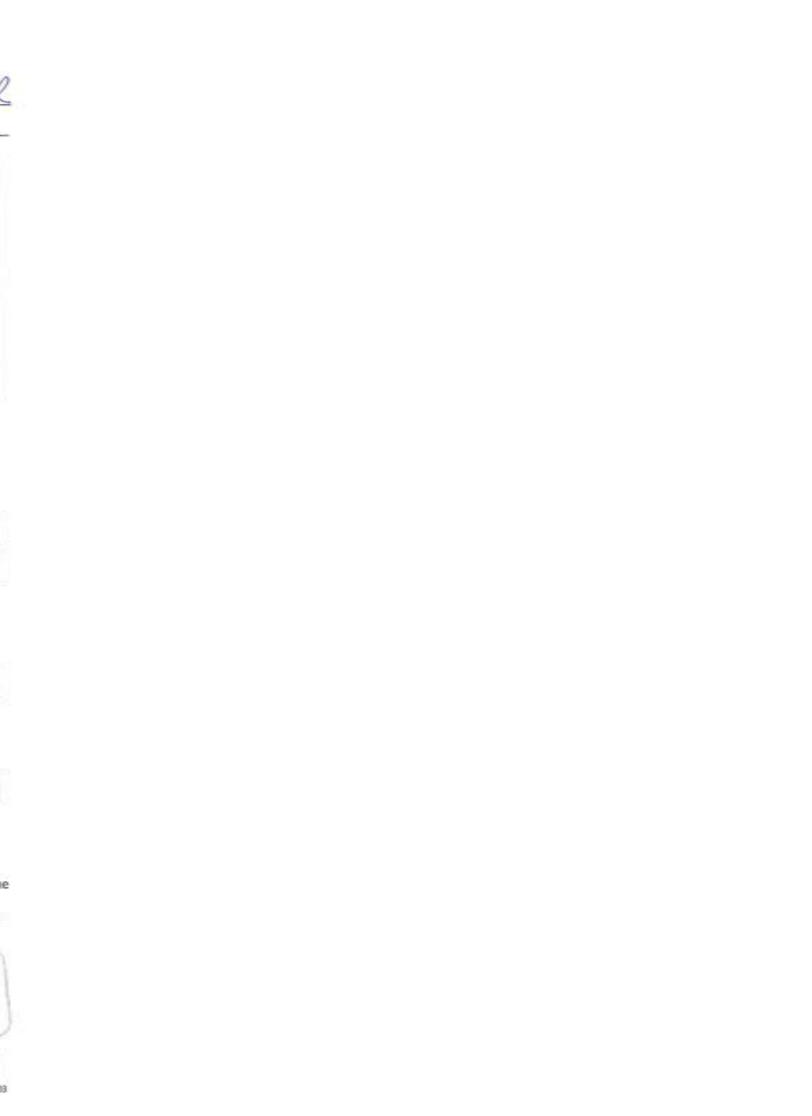
• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 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 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.: New Leadand 5	Opp.: Mailand 5	Rev.: Sweden 5
Physics ±3	Physics ±3	Physics ±3 672
☐ 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
M Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1 0,3	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 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 go
A. Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6



Scoring Guidelin	es Juror: Akyuldijik	: 6 Stage: 3 Problem no.: 1		
application of appropriate mothematics + rea	theories and principles of the problem * an e sonable experimental technique to gother and a perimental findings to draw suitable conclusionable manner	ecord data (or demonstrate the phenomena if		
An opposition should show that: • the opponent chollenged the reporter's und appropriate mathematics presented • the oppopenent appreciated and highlighted the stre	lerstanding of the presented concepts, theories conent critiqued the experimental technique use angths and weaknesses of the report	and principles • the opponent understood the data • the		
important aspects (especially the controversion	we summary of the performances the reporter of ones] • the reviewer's personal opinion was in trivial and demonstrated, where possible, the n by the reporter and the opponent	r evidence (nat just superficial abservations) •		
The reporter, opponent and reviewer electric consider the following suggestions to a Select each partial grade from each sections:	onsists of a partial grade for physics, present ach stort with 5 points. dd to or deduct from the initial 5 points. tion and write it in the corresponding box. I questions were posed or not finding shorts			
tep.:	Opp.:5	Rev.:		
hysics ±3 -0.6	Physics ±3	Physics ±3		
Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers		
resentation ±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		
teporter±1 -0-2	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	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 t		
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points misser		
 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 archive your partial grades – please		
		wartial grades - pressu		
☐ Novelty of the report		do not bend		



Sco	rina	Guid	elines
JLU	rilly	Guiu	cillies

ight (Round no.):	4	Room	6	_ Stage	3	Problem r	10.2	2
mor: MiH.	Kw	on				your		

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 summory 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.: Tess 5	Opp.: Pian 5	Rev.: Ivar 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	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 partial grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer Safter IDC feedback and approved by EC on 20§1-11-03



Scoring Guidel	ines Juror: 1/4 1/4 Noom:	Signature: Problem no.: 12
application of appropriate mothematics	epts, theories and principles of the problem • an ex reasonable experimental technique to gother and re I experimental findings to draw suitable conclusion andable manner	ecord data (or demonstrate the phenomena if
	understanding of the presented concepts, theories a copponent critiqued the experimental technique used	
important aspects (especially the control	yective summary of the performances the reporter a versiol ones) • the reviewer's personal opinion was in non-trivial and demonstrated, where possible, the re used by the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and review Consider the following suggestions Select each partial grade from each 	ris consists of a partial grade for physics, present er 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 shorted the corresponding shorted the corresponding box.	
Oburies ±2	Physics ±3	Physics ±3
Physics ±3	A (A) (A) (A) (A) (A) (A) (A) (A) (A) (A	☐ Correct and relevant physics
☐ Correct and relevant physics ☐ Scientific approach	☐ 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	☐ 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

An opposition should show that:					
the opponent challenged the reporter's under	erstanding of the presented concer	ets, theories an	nd principles • the opponent understood th		
appropriate mathematics presented + the app					
opponent appreciated and highlighted the stree	ngths and weaknesses of the repor	t			
A review should show that:					
 the reviewer succeeded in giving an objects 	ve summary of the performances	he reporter as	nd opponent • the reviewer appreciated th		
important aspects (especially the controversian such personal opinions were informative, non-					
principles and appropriate mathematics used I					
The grade for each of the three teams or	society of a martial grade for play	circ nescente	etion and for their specific role		
 The reporter, opponent and reviewer ea 		aca, preaction	and the specific test		
 Consider the following suggestions to as 		points.			
 Select each partial grade from each sect 			Harris America		
 Don't punish missing 'answers' when no 	- 1	nding shortco	mings if there were none to find.		
New Zealand	They and				
Rep.: /err	Opp.: ///	5	Rev.: /var 5		
		DELA			
Dhuries ±2	Physics ±3	0	Physics ±3		
Physics ±3	E/ WP1	10.777			
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	0	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandal	ole	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner		
Overall impression	☐ Overall impression		☐ Overall impression		
			H. 202 1.1		
Reporter ±1	Opponent ±1	1	Reviewer ±1		
Quality of experimental technique(s)	Response to the report solution	er's	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and w	veak points	☐ Expresses own opinion about		
☐ Explanation of formulae and	of the report	record in	topics presented or discussed Relevance of questions to both		
symbols	☐ Finds shortcomings or e the report	niois in	reporter and the opponent		
 Appropriate models, conformity of dimensions 	☐ Relevance of the quest	Draws attention to points miss by the reporter or the opponer			
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the disc	cussion			
References, proper citations of ideas and input of others			This sheet will be collected by the fight assistant, so we can scan it an fight assistant, so we can scan it an fight assistant.		
☐ Novelty of the report			archive your parties a		
☐ Contribution to the discussion			do not bend		
	1	/			

Fight (Round no.): 4	Room: 6 Stag	= 3	Problem no.: 12
turor: <u>S-Byland</u>			

A report should include:

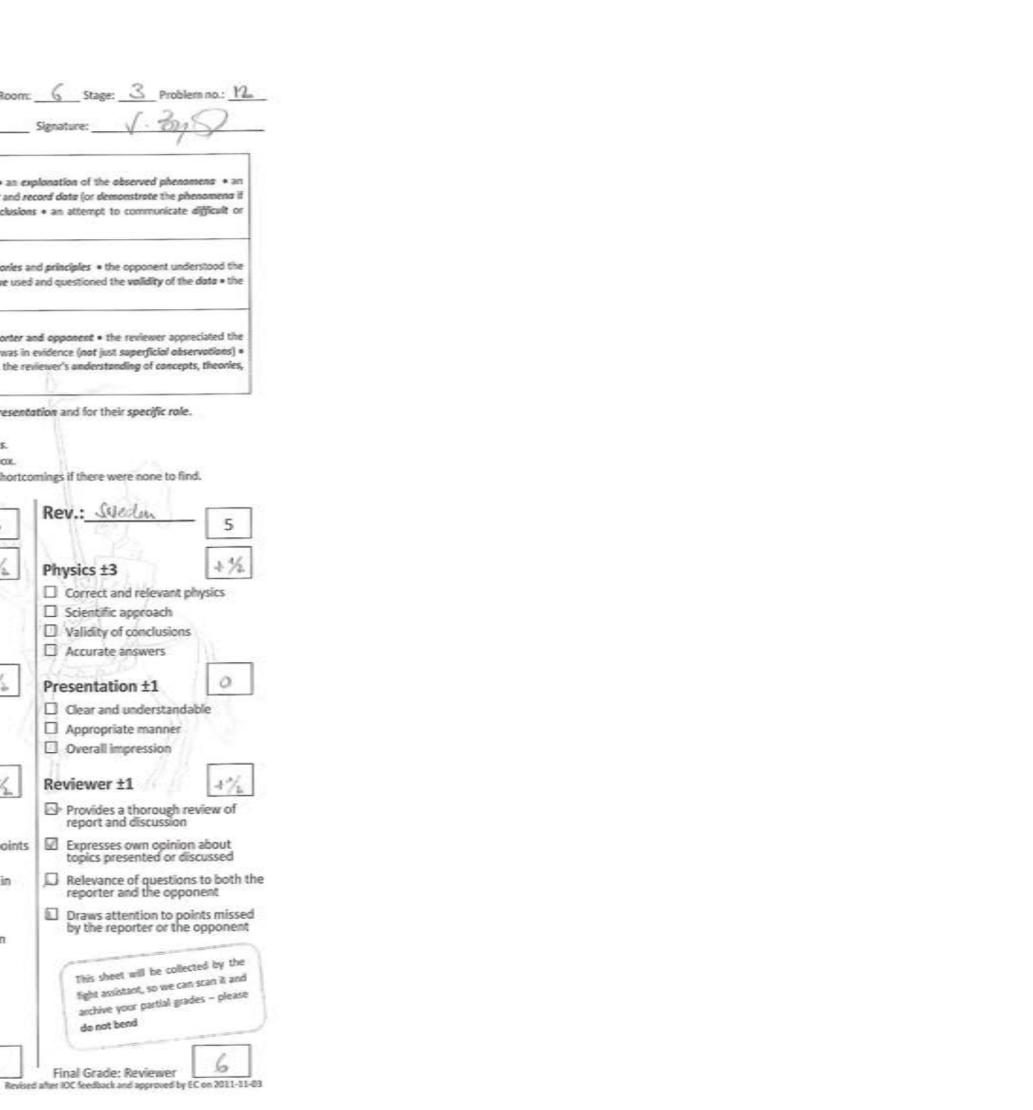
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) • linking of theoretical 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 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 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 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.: Now tarland 5	Opp.: Thailand 5	Rev.: Steden 5
Physics ±3	Physics ±3 +½	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 +1/4	Reviewer ±1 +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 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 stan it and fight assistant, so we can stan it and
□ Novelty of the report		archive your parus a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6



1

Round: _____ Room: _____ Fight Assistants:....

		Stage 1		1	Stage 2			Stage 3			Stage 4	
Team Juror	Thailand Rep	Sueden Opp	Heat Bealand Rev	Sueden Rep	New Yealand Opp	Thail and Rev	New Redund	Thailand Opp	SHEDON Rev	Rep	Орр	Rev
Sandu Mirel Golcea	4	5	Ь	Ь	4	5	5	Ь	4			
Julian Rongoher	5	6	6	5	5	5	P	7	Ь			
Assen Kyuldjiev	4	Ь	Ь	5	Ь	Ь	4	4	5			
Myeung Hoi Kwon	5	7	6	Ь	8	Ь	5	Ь	7			
Ye Yeo	4	6	7	4	7	Ь	P	L	7			
Samuel Buland	4	Ь	7	6	7	5	5	Ь	Ь			
Acting Team Member	Narawich, Wong	Doniel	Jack	Alexander	Jack.	Nontapat	Tess	Pian	Ivar			
Rejected Problems	2.						7,	10				
Accepted Problem	17				5		1	12				

Signature Fight Assistant: Double-checked with Scoring Guidelines by second Fight Assistant (signature): Double-checked with Scoring Guidelines by second Fight Assistant (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 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 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, 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.: Komunia 5	Opp.: Sovakie 5	Rev.: China 5
Physics ±3	Physics ±3	Physics ±3 + 016
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	H 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 // -0/5
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 tight assistant, so we can scan it and tight assistant, so we can scan it and
☐ Novelty of the report		archive your parvis 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 2011-11-09



Fight (R)	ound no.): _/	L_Room:_	7	Stage:	/ Problem no.:	17
luror: _	ONEILL		Signatur	ne:	P10 Mail	

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
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 controversiol 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.: Ramania 5	Opp.: SLOVAKIA 5	Rev.: CHINA 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
technique(s)	solution	Expresses own opinion about
☐ Structure	Shows the strong and weak points of the report	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	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 parum a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent 5	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-0:



Fight (Rou **Scoring Guidelines** Juror: Dr A report should include: · a presentation of the appropriate concepts, theories and principle application of appropriate mathematics • reasonable experimental appropriate) . linking of theoretical and experimental findings to complex ideas in an effective and understandable manner An opposition should show that: the apparent challenged the reporter's understanding of the pres appropriate mathematics presented • the apponent critiqued the exp opponent appreciated and highlighted the strengths and weaknesses A review should show that: · the reviewer succeeded in giving an objective summary of the pe Important aspects (especially the controversial ones) + the reviewer such personal opinions were informative, non-trivial and demonstra principles and appropriate mathematics used by the reporter and the · The grade for each of the three teams consists of a partial gr The reporter, apparent and reviewer each start with 5 point Consider the following suggestions to add to or deduct from · Select each partial grade from each section and write it in th · Don't punish missing 'answers' when no questions were pos Opp.: Physics ±3 Physics ±3 Correct and ☐ Correct and relevant physics Scientific app ☐ Scientific approach ☐ Validity of co □ Validity of conclusions ☐ Accurate ans ☐ Accurate answers Presentation Presentation ±1 Clear and un ☐ Clear and understandable ☐ Appropriate ☐ Appropriate manner Overall impre ☐ Overall impression Opponent ±1 Reporter ±1 Response to solution Quality of experimental technique(s) ☐ Shows the st ☐ Structure of the report ☐ Explanation of formulae and Finds shorter the report Appropriate models, conformity of dimensions Relevance of ☐ Contribution ☐ Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others

☐ Novelty of the report

Final Grade: Reporter

Contribution to the discussion

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Fight (Round no.): 4 Room:	Stage: Problem no.:	
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Juror: Prot Kalazan	Signature: My Olph	
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and write it in the corresponding box.		
stions were posed or not finding shortco	mings if there were none to find.	
pp.:5	Rev.: 5	
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1701	Physica 42	
nysics ±3	Physics ±3	
Correct and relevant physics	Correct and relevant physics	
Scientific approach	Scientific approach	
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Accurate answers	La Acculate diswers	
esentation ±1	Presentation ±1	
Clear and understandable	☐ Clear and understandable	
Appropriate manner	☐ Appropriate manner	
Overall impression	Overall impression	
	11/1/11	
pponent ±1 +	Reviewer ±1	
Response to the reporter's solution	Provides a thorough review of report and discussion	
Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent	
Relevance of the questions	☐ Draws attention to points missed	
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Fight (Round no.): _	Noor	n: + s	tage: 2	Problem no	1+
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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 controversiol 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.: Romania 5	Opp.: Hova kig 5	Rev.: Ching 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics ☐ Scientific approach	☐ Correct and relevant physics ☐ Scientific approach	☐ 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	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 // + Q.S
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 are
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revise	Final Grade: Reviewer 6 after IDC feedback and approved by EC on 2011-11-03

A report should include:

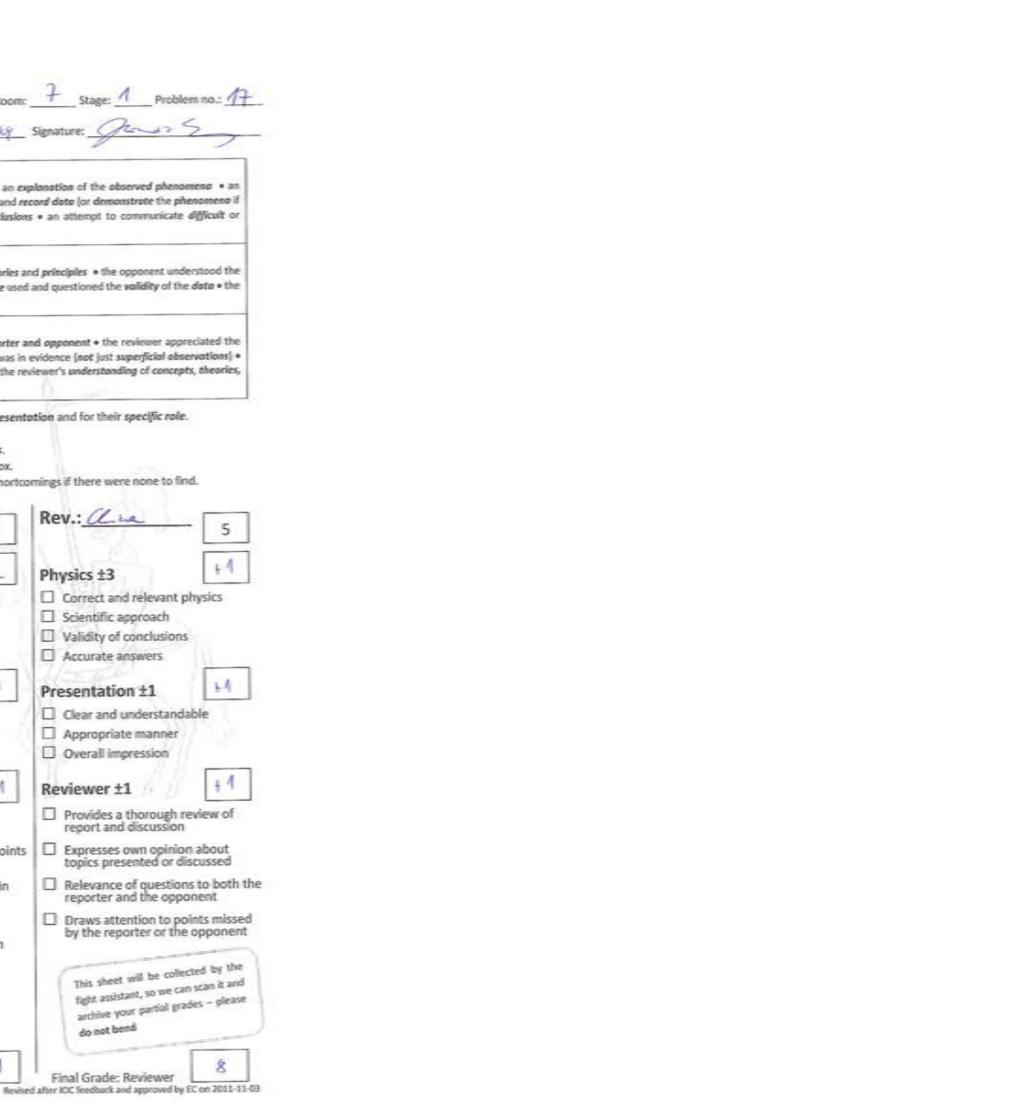
· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical 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 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 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.: formaia 5	Opp.: Loulis 5	Rev.: Chia
Physics ±3	Physics ±3 +2	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
El 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 +4	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 make oracles - please
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Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent 9	Final Grade: Reviewer 8



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A report should include: • a presentation of the appropriate conce application of appropriate mathematics • appropriate) • linking of theoretical and	reasonable ex	perimental t	echnique	to gother an	id record do	ta [or der	manstrate the p	henomena if
complex ideas in an effective and understo								
An opposition should show that • the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the	understandling opponent criti	iqued the exp	enimenta	technique				
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Quality of experimental technique(s)	□ Res	sponse to t lution	the repo	rter's		Provide: report a	s a thorough i ind discussion	review of
Structure of golden	□ Li Sh	ows the str		weak poi	nts 🗆 I	Express	es own opinio	n about
Explanation of formulae and symbols	□ Fin	the report ds shortco e report		r errors in	10	Relevan	resented or d ce of question r and the opp	ns to both
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red 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 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 apparent 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.

Contribution to the discussion

Final Grade: Reporter

Select each partial grade from each sect Don't quoich missing 'answers' when no	on and write it in the corresponding box. questions were posed or not finding shortco	mings if there were none to find.
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Rep.: Novakia 5	Opp.: Wind 5	Rev.: Komania 5
Physics ±3	Physics ±3 2,5	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 0,5	Presentation ±1 0,3	Presentation ±1 015
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 0,3
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		fight assistant, so we can a archive your partial grades - glease

Final Grade: Reviewer

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



Fight (Round no.): 4	Room: Stage	e: 2 Problem no.: 11
luror: 0'NEILL	Signature:	198 Mill

A report should include:

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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 controversiol ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
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Rep.: SLOVAKIA 5	Opp.: CHINA 5	Rev.: Ramania 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 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 the report	Relevance of questions to both 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	Final Grade: Opponent	Final Grade: Reviewer 6	



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Fight (Round no.): Room: _	+ Stage: 2 Problem no.: 1
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mice: The Indiana	signature. Great (Mr. 1711-0

A report should include:

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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
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- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important oxpects (especially the controversiol 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.
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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	(3) 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		suchive April barres 8
☐ Contribution to the discussion	- St. f.	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



1. 7 2	11
Fight (Round no.): Room: Stage: Problem no	11
Juror: Vimoschenkosignature:	

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 opponent entitioned 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
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- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Slevakia 5	Opp.: Ching 5	Rev.: Romanier 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 +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 +0.5	Opponent ±1	Reviewer ±1 // tas
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 a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6 after 100 feedback and approved by EC on 2001-11-03



Fight (Round no.):	4	_Room:	7	_Stage:	2	Problem no.: 11
lerer Halvostle	1 1	MHALY:	Signati	ure:	2.	

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

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appropriate appreciated and highlighted the strengths and weaknesses of the report

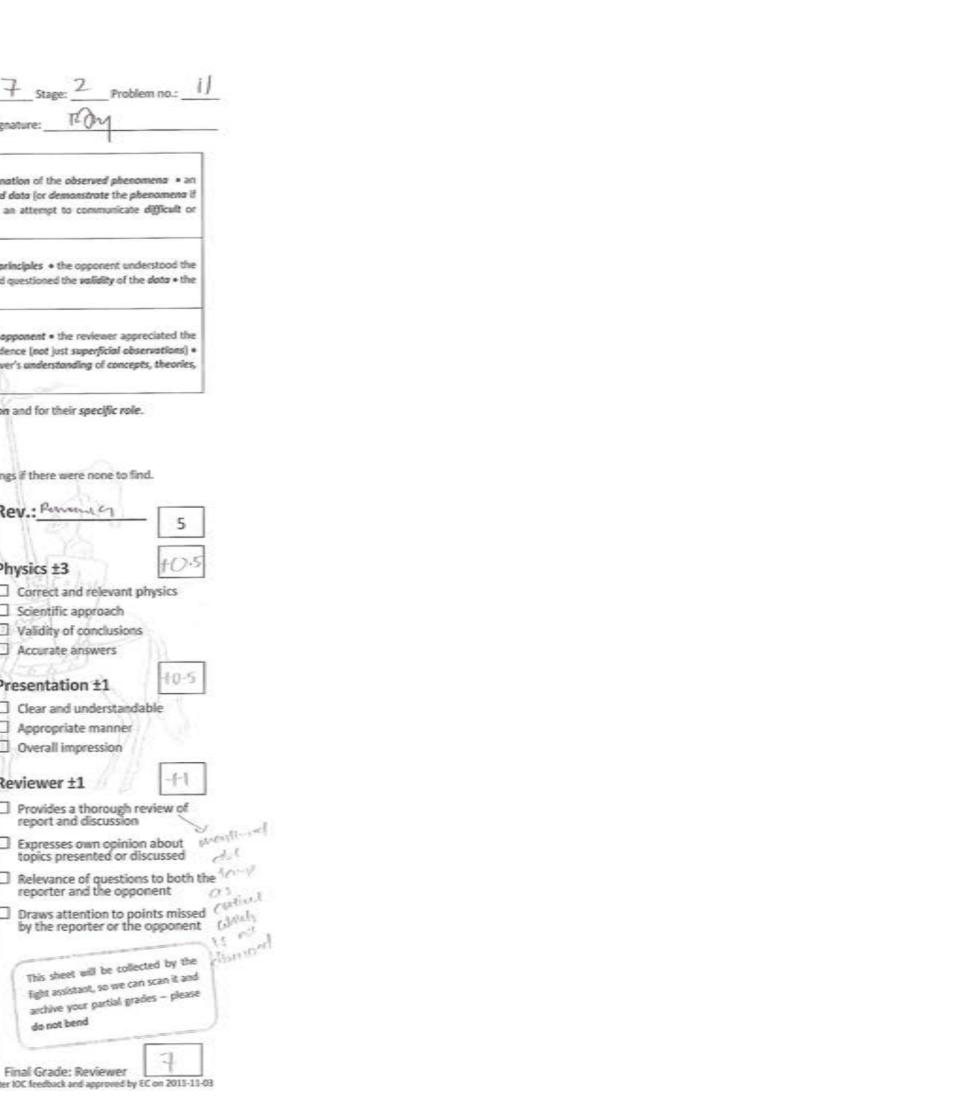
- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
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 principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
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- 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.: SCOVANA 5	Opp.: CAUA 5	Rev.: Korwa 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 +46
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		anthive your parties or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Scoring Guidelines	Fight (Round no.): 4 Room: 7 Stage: 2 Problem no.: Juror: Tour Joy Signature: 170M
application of appropriate mathematics • reasonable	es and principles of the problem • an explanation of the observed phenomena • experimental technique to gather and record data (or demanstrate the phenomena tol findings to draw suitable conclusions • an attempt to communicate difficult oner
	ling of the presented concepts, theories and principles + the opponent understood to critiqued the experimental technique used and questioned the validity of the data + to and weaknesses of the report
A review should show that:	
 the reviewer succeeded in giving an objective sums important aspects (especially the controversial ones). 	many of the performances the reporter and apparent • the reviewer appreciated to • the reviewer's personal apinion was in evidence (not just superficial observations and demonstrated, where possible, the reviewer's understanding of concepts, theore
 the reviewer succeeded in giving an objective sums important aspects (especially the controversial ones); such personal opinions were informative, non-trivial a principles and appropriate mathematics used by the n 	many of the performances the reporter and apparent • the reviewer appreciated • the reviewer's personal apinion was in evidence (not just superficial observation and demonstrated, where possible, the reviewer's understanding of concepts, theorems
the reviewer succeeded in giving an objective summing or control of the control of the such personal opinions were informative, non-trivial a principles and appropriate mathematics used by the summation of the summatic of the summati	many of the performances the reporter and apparent • the reviewer appreciated • the reviewer's personal apinion was in evidence (not just superficial observation and demonstrated, where possible, the reviewer's understanding of concepts, theoreporter and the apparent of a partial grade for physics, presentation and for their specific role. rt with 5 points.
the reviewer succeeded in giving an objective sums important aspects (especially the controversial ones) such personal opinions were informative, non-trivial a principles and appropriate mathematics used by the normalized for each of the three teams consists. The reporter, apponent and reviewer each start. Consider the following suggestions to add to a	many of the performances the reporter and apponent • the reviewer appreciated • the reviewer's personal opinion was in evidence (not just superficial observation and demonstrated, where possible, the reviewer's understanding of concepts, theore eporter and the opponent. of a partial grade for physics, presentation and for their specific role. rt with 5 points. r deduct from the initial 5 points.
the reviewer succeeded in giving an objective sums important aspects (especially the controversial ones) such personal opinions were informative, non-trivial a principles and appropriate mathematics used by the normalized for each of the three teams consists. The reporter, apponent and reviewer each start. Consider the following suggestions to add to a Select each partial grade from each section and	many of the performances the reporter and apponent • the reviewer appreciated • the reviewer's personal opinion was in evidence (not just superficial observation and demonstrated, where possible, the reviewer's understanding of concepts, theore eporter and the opponent. of a partial grade for physics, presentation and for their specific role. rt with 5 points. r deduct from the initial 5 points.
the reviewer succeeded in giving an objective summinportant aspects (especially the controversial ones) such personal opinions were informative, non-trivial a principles and appropriate mathematics used by the non-trivial appropriate mathematics used by the non-trivial appropriate mathematics used by the non-trivial supporter, appropriate and reviewer each star Consider the following suggestions to add to one Select each partial grade from each section and Don't punish missing 'answers' when no questions.	many of the performances the reporter and apponent * the reviewer appreciated to the reviewer's personal apinion was in evidence (not just superficial observations and demonstrated, where possible, the reviewer's understanding of concepts, theorie porter and the opponent. of a partial grade for physics, presentation and for their specific role. In the with 5 points. or deduct from the initial 5 points. It write it in the corresponding box.

Rep.: Styatin 5	Opp.:_(\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Rev.: Person C 5
Physics ±3	Physics ±3	Physics ±3 +O-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 10-5	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 +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	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 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	1
References, proper citations of ideas and input of others	for the discount plus	This sheet will be concern stand and
□ Novelty of the report	The state of the s	archive your parus: p
☐ Contribution to the discussion	been ph more specialism.	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Fight (Round no.): 4 Room: 7 Stage: 3 Problem no.: 6

A report should include:

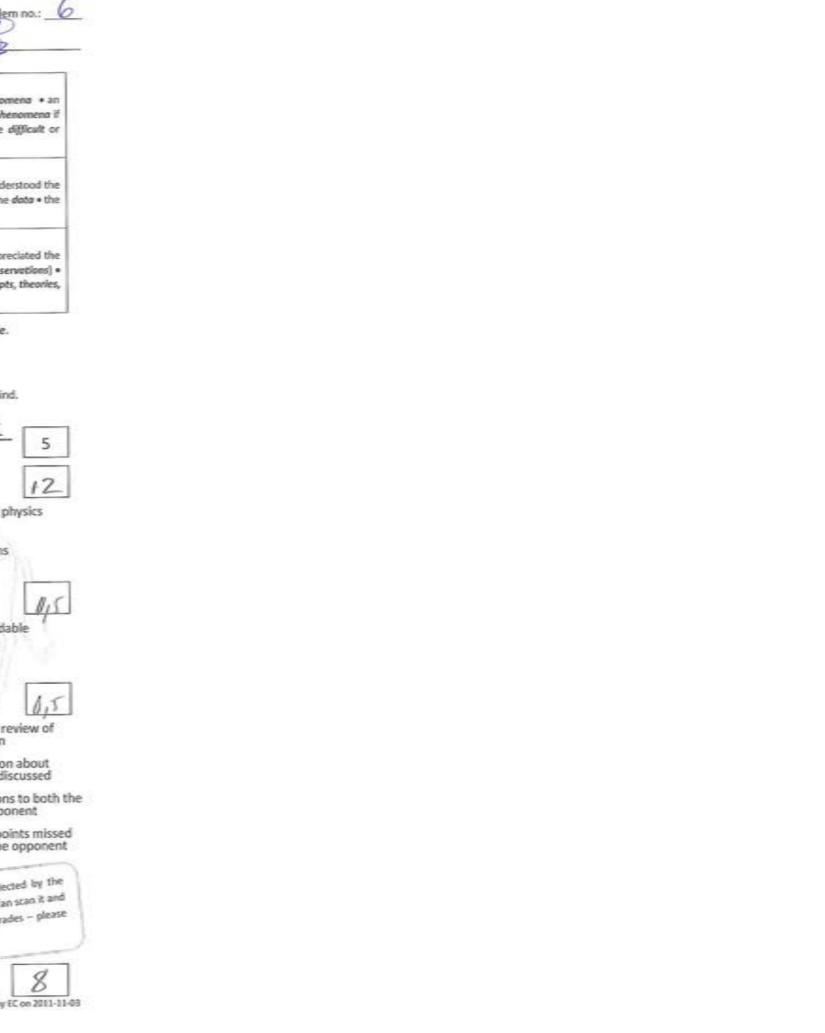
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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
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.: Clina 5	Opp.: Komana 5	Rev.: Stoubia 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 0	Presentation ±1 0,4	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable //	H 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 	☐ 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 parour s
T Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 8



Scoring Guidelin	es Juran: 0'NEILL		7 Stage: 3 Problem Signature: 10 M will	no:_6_
A report should include: • a presentation of the appropriate concepts application of appropriate mothematics • resuppropriate) • linking of theoretical and excomplex ideas in an effective and understand	isonable experimental technique to gi perimental findings to draw suitable	other and rec	rond data (or demonstrate the phen	process if
An opposition should show that: • the opponent challenged the reporter's and appropriate mathematics presented • the oppopenent appreciated and highlighted the street.	ponent critiqued the experimental tec	s, theories an Amique used	d principles * the opponent unders and questioned the validity of the d	tood the
A review should show that: • the reviewer succeeded in giving an object important aspects (especially the controvers) such personal opinions were informative, not principles and appropriate mathematics used	of ones) • the reviewer's personal api a-trivial and demonstrated, where pos	inion was in e	evidence (not just superficial observ	ations) •
The grade for each of the three teams of the reporter, opponent and reviewer exponent and reviewer exponent the following suggestions to or select each partial grade from each second to bon't punish missing 'answers' when no	each stort with 5 points. add to or deduct from the initial 5 p tion and write it in the correspond	points. ling box.		
Rep.:	Opp.:	5	Rev.:	5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant phy Scientific approach Validity of conclusions Accurate answers	sics	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	rsics
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Reporter ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression Opponent ±1	e]	Presentation ±1 Clear and understandab Appropriate manner Overall impression Reviewer ±1	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 solution Shows the strong and we of the report Finds shortcomings or enthe report Relevance of the question Contribution to the discussion	eak points rrors in	Topics presented or disc Relevance of questions reporter and the oppon Draws attention to poin by the reporter or the o	about ussed to both the ent ts missed pponent
References, proper citations of ideas and input of others Novelty of the report Contribution to the discussion Final Grade: Reporter	Final Grade: Opponent	7	This sheet will be collected fight assistant, so we can support the collected fight assistant, so we can support the collected fight assistant, so we can support the collected fight assistant assistant fight assistant assistant fight assistant assistant fight as a single fight assistant fight as a single fight assistant fight as a single fi	s - please

	//	/
Fight (Round no.): _	Room: Stage: 5 Problem n	0:- 6
luror: Pract	Kalastina Signature: mgat onlyin	

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 summory 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 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	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 partial grant			
Contribution to the discussion		do not bend			
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer dather IDC feedback and approved by EC on 2001-11-03			



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Fight (Round no.): V Room	n: Stag	5	Problem no.	6
wor. Timoshehenko	Signature:	fr	1	
		V	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 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 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 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 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.: Ching 5	Opp.: Komenia	- 5	Rev.: Slovakia 5		
Physics ±3	Physics ±3	+	Physics ±3		
☐ Correct and relevant physics	Correct and relevant p	ihysics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	T	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers		
Presentation ±1	Presentation ±1	6	Presentation ±1 +0,5		
☐ Clear and understandable	☐ Clear and understand	able	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner		
☐ Overall impression	☐ Overall impression		☐ Overall impression		
Reporter ±1 +0.5	Opponent ±1	+005	Reviewer ±1		
Quality of experimental technique(s)	Response to the report solution	ter's	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and of the report	weak points	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 ques	tions	reporter and the opponent Draws attention to points missed		
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the di	scussion	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		
☐ 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 6		

ight (Round no.): _	4	Room:	7	_Stage: _	3	_Problem no.: _	6
uror: HO TVO	Mil	HART	Signati	ure 1	2	-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 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

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.: CHAN	Opp.: foreste	Rev.: SCOVAKIA 5		
Physics ±3 +4	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 +1	Presentation ±1 +05	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 + 4	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 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 s		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 8	Final Grade: Reviewer 8 safter IDC feedback and approved by EC on 2011-11-03		



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ight (Roun	dino.):	4	Room:	7	Stage:	3	Problem no.:	6
uror:	Ton	Joy		Signatu	re:	-MG	ty	

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 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 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.: Chine	Opp.: Former	Rev.: Soudicia
Lu Kellen 5	Horia 5	mirosku 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 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 pareas or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Round: Room:

Fight Assistants:

angana Supernok

		Stage 1		1	Stage 2			Stage 3	22		Stage 4	
Team	Romania	Slova kia	China	Slovakia	China	Romania	China	Romania	Slovokia			
luror	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev
Kim Freimann (chair)	3	5	5	9	8	7	7	7	8			
Philip O'Neill	3	5	7	6	6	6	7	7	8			
Pruet Kalasuwan	4	7	ь	8	6	6	8	6	7			
Igor Timoshchenko	4	6	Ь	6	7	6	8	7	6			
Mihaly Hömöstrei	6	q	8	8	7	6	8	8	8			
Joy Tan	4	5	8	6	7	7	9	9	8			
Acting Team Member	Dimitrie Mititelu	Miroslav Gaspárek	Jingxian Wang	Adám Urban	Kehan Lu	Ance Goldis	Kehan Lu	Horia Magureann	Miroslav Gaspárek			
Rejected Problems	3. Shaded							-				
Accepted Problem	17. Coffee	e Cup		n. Cat's	Whisker		b. Magn	us Glider				

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ight (Round no.):	4	Rooms	8	Stage	1	_Problem no.: \7	
uror: Kathry	r li	alare	Signatu	re:	fu	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 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 opponent enablemental technique used and questioned the walldity 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.: Brazil 5	Opp.: Keyn 5	Rev.: UKraine 5
Physics ±3	Physics ±3 $-\frac{1}{2}$	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 be and of	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 A Quality of experimental technique(s)	Opponent ±1 + 1	Reviewer ±1 Provides a thorough review of report and discussion L + SUMARIA
☑ 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 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	more summing of report rules.	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	excellent pick up of uncontrolled	archive your parties a
☐ Contribution to the discussion	experients, could have asked more	do not bend
Final Grade: Reporter	Final Grade: Onnonent 4	Final Grade: Reviewer d after 10C feedback and approved by EC on 2011-11-03

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ight (Round no.): 4 Room: 8 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 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
oppropriate 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 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.: Nigeria 5	Rev.: Utraine 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 6	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 parses of
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer d after ICC feedback and approved by EC on 2011-11-09



Fight (Round no.):	4	Room:	8	_Stage:	Problem no.: 12
					int Ciro

A report should include:

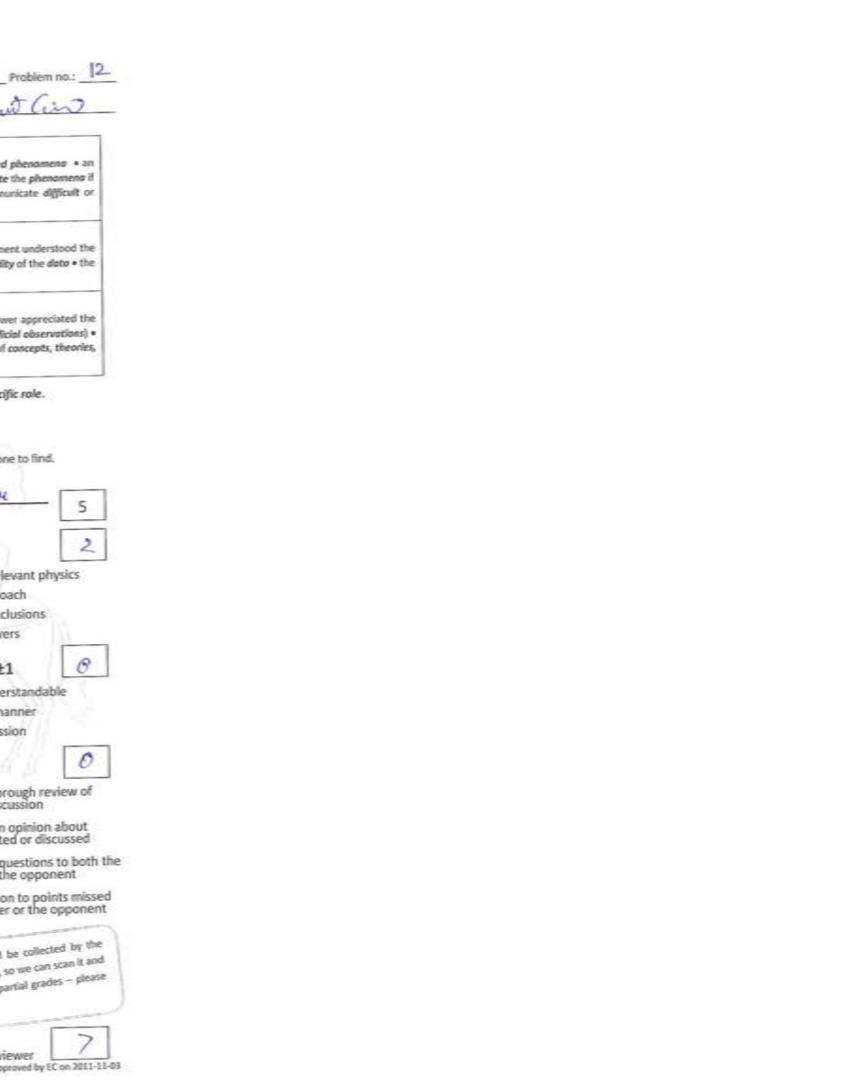
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical 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 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.: svazil 5	Opp.: Nigeria 5	Rev.: Ukveine 5
Physics ±3	Physics ±3 Correct and relevant physics	Physics ±3
Correct and relevant physics	Scientific approach	☐ Scientific approach
Scientific approach	☐ Validity of conclusions	☐ Validity of conclusions
☐ Validity of conclusions	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 O	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
 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 of
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-4



Fight (Round no.): 4 Room: 8 Stage: Problem no.: 12.

Juror: Wassen Kundhusanjan Signature: Mrs. Le.

A report should include:

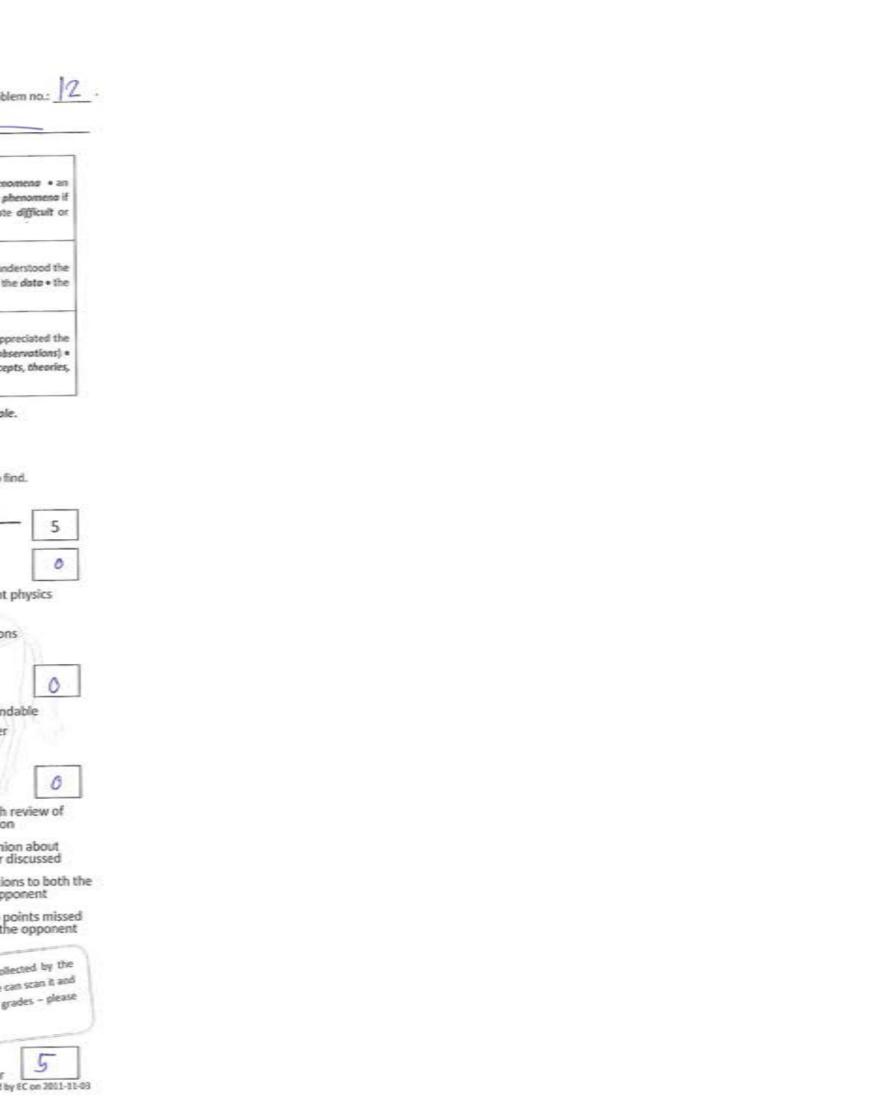
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if appropriate) * linking of theoretical 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 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 controversiol 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.: Bazil 5	Opp.: Nigeria 5	Rev.: Okraine. 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 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 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 or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer dialter IOC feedback and approved by EC on 2011-11-05



ight (Round no.): _	4	Room:	8	Stage:	1	Problem no.:	12
STALLSLA					B	-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
opponent and the matternatics 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.: BRATIL 5	Opp.: NEERIA 5	Rev.: UKRAINE 5		
Physics ±3	Physics ±3	Physics ±3		
☐ 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 +0,5	Presentation ±1 +1	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,r	Opponent ±1	Reviewer ±1 / †0		
 — ✓ Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion		
	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	the report	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 	☐ Contribution to the discussion			
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		artistre your parties of		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer latter IOC feedback and approved by EC on 2011-11-03		



Fight (Round no.): 4 Room: 8 Stage: Problem no.: #12 Buror: Hung-Chih Kanpignature: Delle 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 mathematics • reasonable experimental technique to gather 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 understondable 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 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 role. parter apparent and reviewer early start with 5 moints.

Rep.:	Opp.: NG 5	Rev.: 4 K 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions
Presentation ±1 Clear and understandable Appropriate manner	Presentation ±1 Clear and understandable Appropriate manner	Presentation ±1 Clear and understandable Appropriate manner
Overall impression Reporter ±1	Opponent ±1	Overall impression Reviewer ±1
Quality of experimental technique(s) Structure	 ☑ 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
Explanation of formulae and symbols Appropriate models, conformity of dimensions	Finds shortcomings or errors in the report Relevance of the questions	Relevance of questions to both ti 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 	☐ Contribution to the discussion	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please
Novelty of the report Contribution to the discussion		do not bend



0		C: 1	-1:
SCO	rıng	Guia	elines

Fight (Round no.): 4 Room: 8 Stage: 2 Problem no.: 5

Juror: Kothyn Wallow Signature: KWW

A report should include:

* a presentation of the appropriate concepts, theories and principles of the problem * an explonation of the observed phenomena * as 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 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, 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.: Nigra 5	Opp.: UKrahe 5	Rev.: Bari
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 Oquality 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 Contribution to the discussion	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 Pued to median pur of lither shorts.	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 archive your partial grades – please do not bend
Final Grade: Reporter 2	Final Grade: Opponent 3	Final Grade: Reviewer 6 after IOC feedback and approved by EC on 2011-11-03

rved phenomena • an trate the phenomena if mmunicate difficult or
ponent understood the slidity of the data • the
niewer appreciated the verficial observations) • g of concepts, theories,
pecific role.
relevant physics proach onclusions swers 1 ±1 derstandable manner ression horough review of discussion wn opinion about
nted or discussed of questions to both the
d the opponent ation to points missed atter or the opponent
will be collected by the ot, so we can scan it and it partial grades – please d
7-57 8 eviewer approved by EC on 2011-11-03

Fight (Round no.): 4 Room: 8 Stage: 2 Problem no.: 5

Juror: Vent Hagan Signature: With 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 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 ospects (especially the controversiol 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.: Wraine 5	Rev.: Brazi 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 +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 misse by the reporter or the opponen	
 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	Q	do not bend	
Final Grade: Reporter 2	Final Grade: Opponent 6	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-01	



Scoring Guide	Guidelines
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Fight (Round no.):	4	Boom:	8	Stage:	2	_Problem no.: _S	
tome S. Livi		ne de	Signatu	ire:	Lu	t. Cin	

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.: Nigeria 5	Opp.: Ukraine 5	Rev.: \$ va 2 i 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 G	Opponent ±1	Reviewer ±1 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 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 o		
Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 7 d after IOC feedback and approved by EC on 2011-11-0:		



Fight (Round no.): 4 Room: 8 Stage: 2 Problem no.: 5 Juror: Mancon Knohkayin Signature: May 16 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 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 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, winte mathematics used by the reporter and the opponent.

 The grade for each of the three teams of The reporter, opponent and reviewer expenses 	ach start with 5 points.	
 Consider the following suggestions to a 	dd to or deduct from the initial 5 points	e 1
 Select each partial grade from each sect 	ion and write it in the corresponding bo	W.
Don't punish missing 'answers' when no Reject # 17,19,3,		
Rep.: Nigerta 5	Opp.: Ukraine 5	Rev.: 87421 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	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 in the report.	_
 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 parise of
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-



ight (Round no.): 4	Room: 8	Stage:	2	Problem no.:	5
WOOT STADISLAN			Pa	ur s	

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.: NIGELIA 5	Opp.: MKEAILE 5	Rev.: PRATIL 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 +1	Reviewer ±1 49T		
☐ 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 fight assistant, so we can scan it and		
☐ Novelty of the report		artisire your partial by an		
☐ 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		



Fight (Round no.): 4 Room: 8 Stage: Z Problem no.: 5

Auror: HUMG-Chih Kam Signature: 18 CM

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.: NG 5	Opp.:	Rev.: <u>BK</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 0.3	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
☐ Novelty of the report		archive your parties and
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer 6 after 100 feedback and approved by EC on 2011-11-09



ight (Round no.): 4	Boom: 8	Stage: 3	Problem no.:	0
uror: Kat West		ure: MU	M	

A report should include:

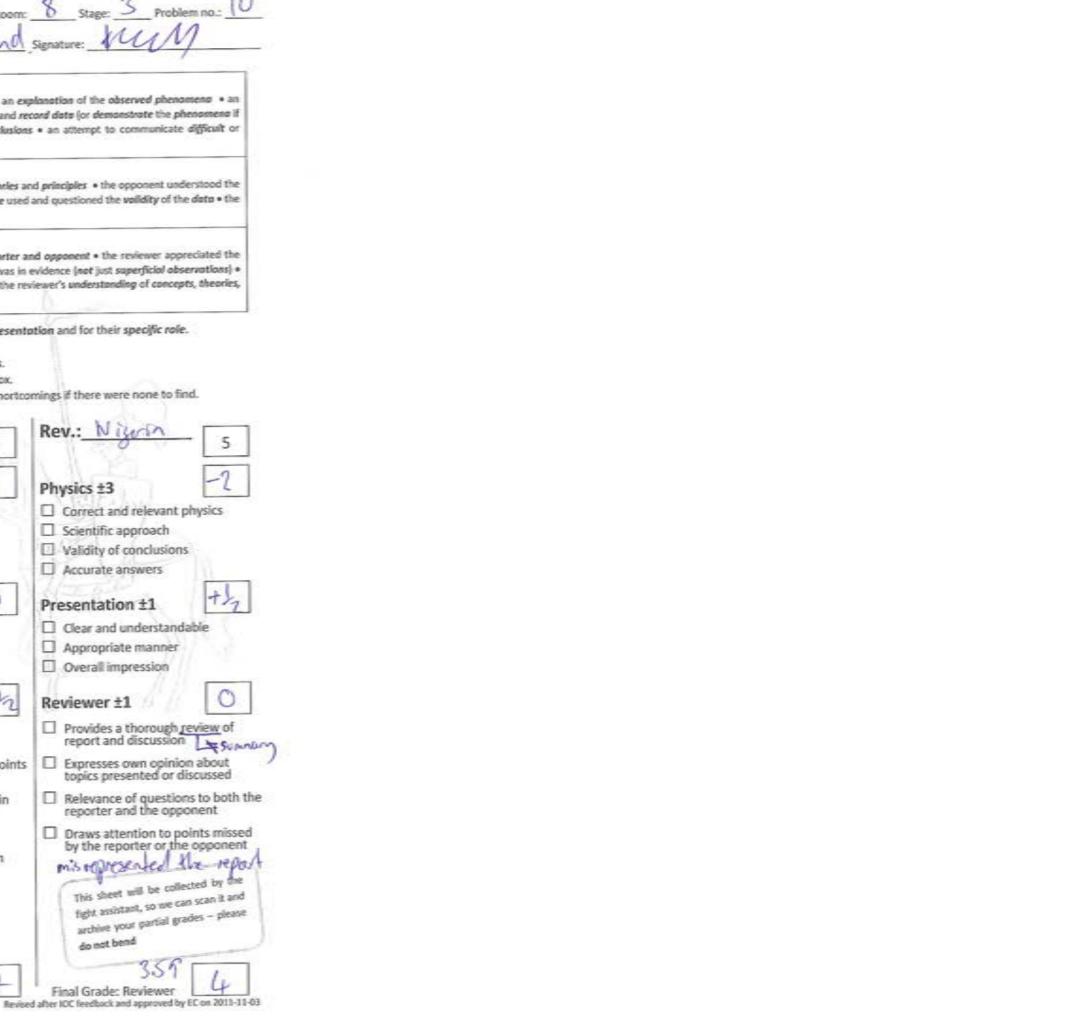
 a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena. application of appropriate mothematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and 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 mothematics 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 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.: Werne 5	Opp.: Rearil 5	Rev.: Nigorn 5
Physics ±3	Physics ±3	Physics ±3
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 + 17
☐ 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 1/16 (c)	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	mis or presented the report
References, proper citations of ideas and input of others Novelty of the report		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend
Contribution to the discussion	(5 M2)	359 1
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Fight (Round no.):	4	Room:	8	Stage	3	Problem no.:	10
Fight (Round no.): _ Juror: Kent t	lagr	in	Signati	ure: V	af	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 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:

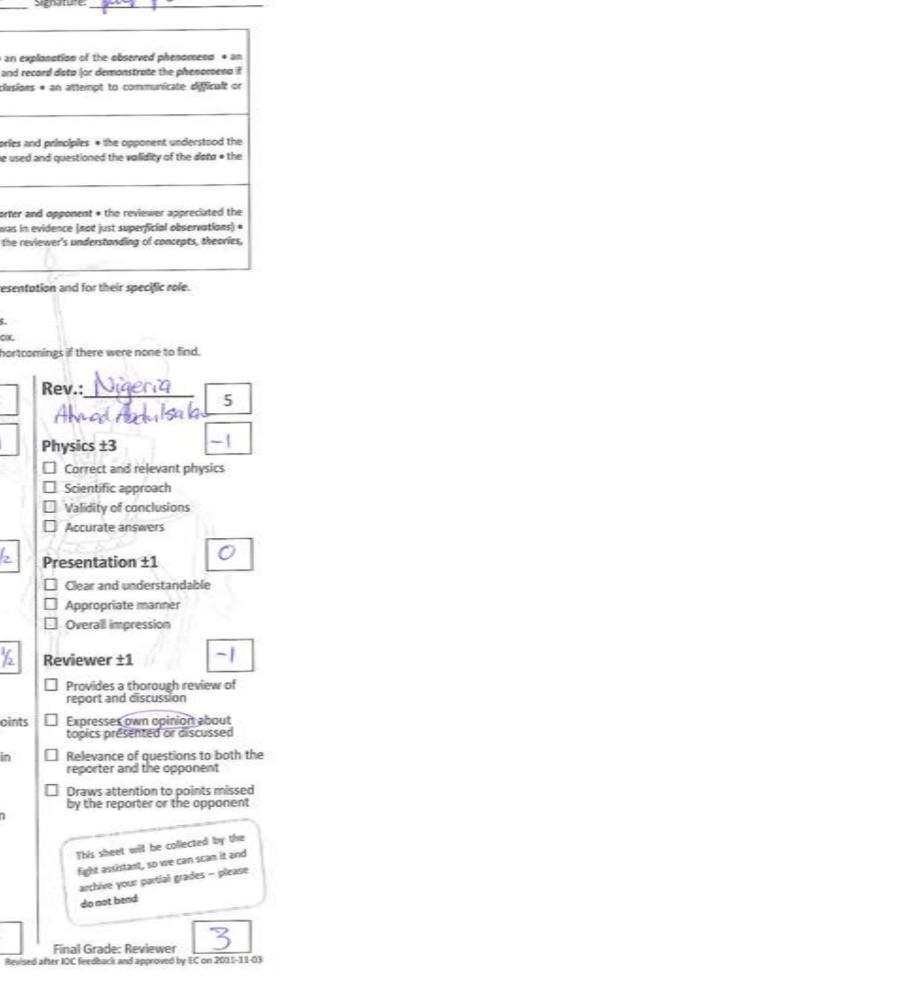
• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 idemonstrated, 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.: Ukraine Physicar Nazar 5	Opp.: Brazil 5	Almod Admilsala 5
Physics ±3 +2	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 - 1/2	Opponent ±1 + ½	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, laudio, 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		active your pares o
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer 3



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ight (Round no.):	4	Room:	8	Stage:	3	Problem no.:	10
uror: S. Live							

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 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.: Oversing 5	Opp.: Byazi 5	Rev.: Nigeria 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		archise your parties or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent 7	Final Grade: Reviewer 5



Scoring Guidelines Fight (Round no.): 4 Room: 8 Stage: 3 Problem no.: 10

A report should include:

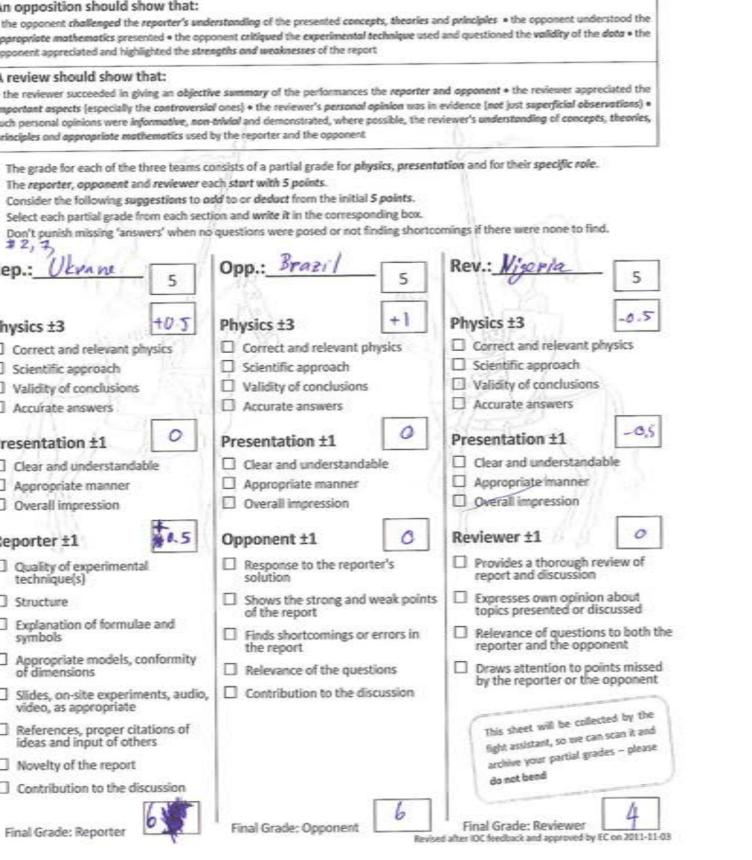
 a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . linking of theoretical 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 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 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.

*2,3		and the second
Rep.: Utrane 5	Opp.: Brazil 5	Rev.: Nigeria 5
Physics ±3 +0.5	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 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
 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
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ight (Round no.): _	4	Rooms	8	Stage:	3	Problem no.:	10
WER STANISCH					B	8	

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
opponent 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.: UKRAINE 5	Opp.: BRAZIL 5	Rev.: PIGERIA 5
Physics ±3	Physics ±3	Physics ±3
E 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 Response to the reporter's solution	Reviewer ±1 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 parour or
☐ 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



Fight (Round no.): 4 Room: 8 Stage: 2 Problem no.: 10

Juror: Hung-Chih Kunsignature: 6000

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 controversiol 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.: BR 5	Rev.: N 6 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 0.5	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 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	☐ 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	auted by the
References, proper citations of ideas and input of others.		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please
☐ Novelty of the report ☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 50 on 2011-11-0



Round: Room:

... Fight Assistants:..

Sometria & Jadsada

	Ĕ	Stage 1		I	Stage 2		1	Stage 3			Stage 4	
Team	Brazil	Mideria	Ulrame	Nigeria	Vernine	Brazil	Ukrain	Breeil	Nigeria.			
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Opp	Rev
Kathryn Zealand (Zwir)	4	4	7	2	3	8	8	7	4			
Kent Hogan	ŷ	b	4	2	6	B	7	٦	3			
Surachate Limbumned	T	4	7	3	5	7	٦	7	6			
Marasaw lumdhikanjama	4	5	ħ	3	6	8	6	6	LE			
Stanislav Painos	4	Ь	6	3	6	5	4	7	ь			
Herny-Chilh loss	3	5	ħ	4	5	Ь	4	7	5			
Acting Team Member	Diego de Movra	Rebecca Banjo	Melnyk Eugene	Abdulsammad Abdulsalam	Nikita Regovoy.	Things Bergamashi-88	Nazar Rybovar.	Thiago kalife	Ahmad Abdulohi			
Rejected Problems				(17) (1	5)(3)		(2)(7)				
Accepted Problem	(12)			(6)			(10)					

Southai

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

jadsada

Scoring Guidelines	Fight (Round no.): 4 Room: 9 Stage: 1 Problem no.: 1 Juror: AKAN ALLINSON Signature: AL Alle
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 nd weaknesses of the report
important aspects (especially the controversial ones) such personal opinions were informative, non-trivial	many of the performances the reporter and opponent • the reviewer appreciated the • the reviewer's personal apinion was in evidence (not just superficial abservations) • and demonstrated, where possible, the reviewer's understanding of concepts, theories, eporter and the opponent.

	onsists of a partial grade for physics, presento	tion and for their specific role.
The reporter, opponent and reviewer ex- Consider the following supportions to a	ach start with 5 points. dd to or deduct from the initial 5 points.	
	ion and write it in the corresponding box.	
	questions were posed or not finding shortco	mings if there were none to find.
Al mile	0 (035)	(I (TAL)
Rep.: Alex 65	Opp.: Stepan (RJS)	Rev. Samue 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 were's
Accurate answers No brokes	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 Yz	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 + ½	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 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 metric grades - please
□ Novelty of the report		suchive your parous a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer latter IOC feedback and approved by EC on 2011-11-03



ight (Round no.): 4 Room	n: F9 Stage:	1 Problem no.: /	7
wor: Aplieut Dinost		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 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

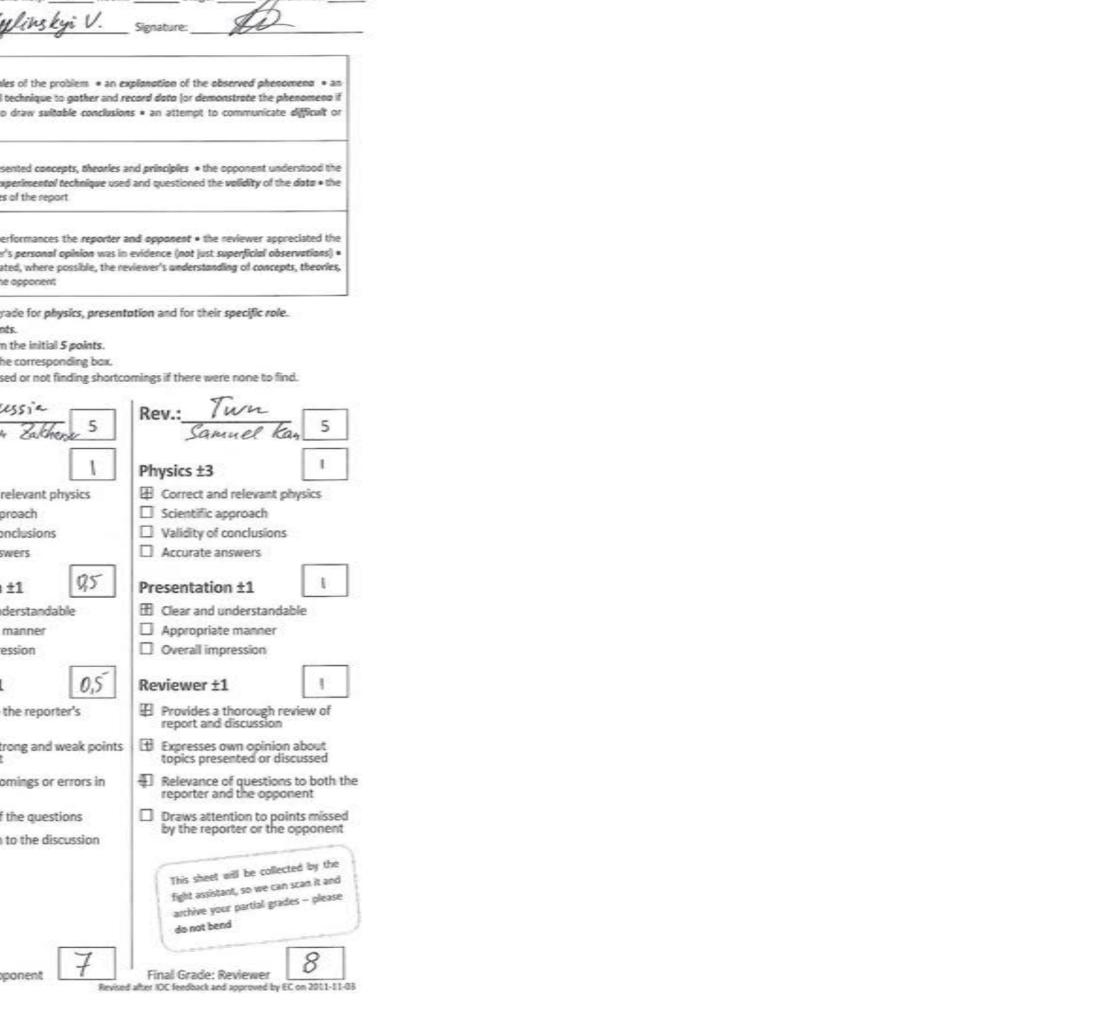
- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were 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.: Russia 5	Rev.: Tocwan 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 + 0.3	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 ro.2	Opponent ±1 +0-3	Reviewer ±1 +0.4		
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 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 gradies		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 6	Final Grade: Opponent 6	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03		



Scoring Guidelines	Fight (Round no.): 4 Room: 9 Stage: 1 Problem no.: 1
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 oner
	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 controversial ones)	many of the performances the reporter and opponent • the neviewer 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, eporter and the opponent
 The reporter, apparent and reviewer each store Consider the following suggestions to add to or Select each partial grade from each section and 	r deduct from the initial 5 points.

	onsists of a partial grade for physics, present	otion and for their specific role.
 The reporter, apponent and reviewer ex 		
 Consider the following suggestions to a Select each partial grade from each sect 	dd to or deduct from the initial 5 points.	
	questions were posed or not finding shortco	mines if there were none to find.
Rep.: Blg Alex Trans 5	Opp.: Russia 5	Rev.: Twn Samuel Kan 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	El 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	⊞ 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 scan it and
? Novelty of the report		archive your parties go
H Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent	Final Grade: Reviewer 8



Fight (Round no.):	4 Room	sta	ge:	_ Problem no.:	14
luror: Oina	Idadi	Signature:	200	14	

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, 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 shortco	mings if there were none to find.
Rep.: Balanca	Opp.: Russia	Rev.: Taiman 5
Alexander Ivanov 5	Stepan Takkora 5	Samuel Kan
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 - 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	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 fight assistant, so we can scan it and
☐ Novelty of the report		archive your parviol 6
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer



Scoring Guidelir	Fight (Round no.): 4 Room: Ner: Kerry Parker	9 Stage: 1 Problem no.: 19
application of appropriate mathematics • re	ts, theories and principles of the problem • an expansionable experimental technique to gother and resperimental findings to draw suitable conclusion	planation of the observed phenomena • an cord data (or demanstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's an appropriate mathematics presented • the opponent appreciated and highlighted the st	nderstanding of the presented concepts, theories a poonent critiqued the experimental technique used rengths and weaknesses of the report	nd principles • the opponent understood the and questioned the volidity of the data • the
important aspects (especially the controver	ctive summary of the performances the reporter a siol ones) • the reviewer's personal opinion was in to-trivial and demonstrated, where possible, the re- d by the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for physics, presents each start with 5 points. add to or deduct from the initial 5 points. ction and write it in the corresponding box. no questions were posed or not finding shortco	
Rep.: Tuesde 5	Opp.: Zatharov 5	Rev.: Sanuel Kan 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
Scientific approach Vacations X pluggers Validity of conclusions X pluggers Accurate answers X uncotants	Scientific approach Validity of conclusions Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 +0-5	Presentation ±1	Presentation ±1
Appropriate manner Overall impression	Appropriate manner Overall impression	Appropriate manner Overall impression
Reporter ±1 0.5	Opponent ±1	Reviewer ±1 4 6
Quality of experimental sechnique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed Relevance of questions to both ti
symbols Appropriate models, conformity	Finds shortcomings or errors in the report Relevance of the questions	reporter and the opponent Draws attention to points missed
of dimensions Slides, on-site experiments, audio		by the reporter or the opponent
video, as appropriate References, proper citations of ideas and input of others	lus mirred.	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 pareus b
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5.	Final Grade: Reviewer 5.

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Sco	rina	Guid	P	lines
$J \cup U$	illig	Julu	C	IIICS

Fight (Rou	und no.):	Roomc	9	Stage:	/ Problem no.:	14
loner	Burnin		Sanat	B.	arin	

Revised after IOC feedback and approved by EC on 2011-11-09

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 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.: Alexander 5	Opp.: Stylen 5	Rev.: Survey 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 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 th
	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 partial grant
☐ Contribution to the discussion		do not bend
1	Final Grades Opposed 5	Final Grade: Reviewer 6

	Fight (Round no.): 4 Room:	9 Stage: 2 Problem go.: 6
Scoring Guideli	nes wor. Alan Allinson	
application of appropriate mathematics •	pts, theories and principles of the problem + an ex reasonable experimental technique to gother and re experimental findings to draw suitable conclusion adoble manner	cord data (or demonstrate the phenomena if
	understanding of the presented concepts, theories a apponent critiqued the experimental technique used	
important aspects (especially the controve	ective summary of the performances the reporter a rsial ones) • the reviewer's personal opinion was in on-trivial and demonstrated, where possible, the re ed by the reporter and the opponent	evidence (nat just superficial abservations) •
The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each partial grade from each select each partial grade from each select each partial grade from each par	s consists of a partial grade for physics, present reach start with 5 points. a add to or deduct from the initial 5 points. ection and write it in the corresponding box. no questions were posed or not finding shortco	
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach — Bernel ☐ Validity of conclusions	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3 \ Correct and relevant physics Scientific approach Validity of conclusions
Presentation ±1 Clear and understandable Appropriate manner	Presentation ±1 Clear and understandable Appropriate manner	Presentation ±1 Clear and understandable Appropriate manner
□ Overall impression Reporter ±1 □ Quality of experimental technique(s) □ Simble 110 N	Opponent ±1 Response to the reporter's solution	Reviewer ±1
☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity	☐ Shows the strong and weak points of the report ☐ Finds shortcomings or errors in the report	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent
of dimensions Slides, on-site experiments, audivideo, as appropriate References, proper citations of ideas and input of others	o, Contribution to the discussion	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, and grades – please
Novelty of the report Contribution to the discussion	6k	fight assistant, so we can be achive your partial grades – please do not bend

Scoring Guidelin	es Juror: Alan Allinson	9 Stage: 2 Problem go.: 6		
application of appropriate mathematics • res	, theories and principles of the problem + an ex sonable experimental technique to gother and re perimental findings to draw switable conclusion oble manner	cord data (or demonstrate the phenomena if		
	derstanding of the presented concepts, theories as ponent critiqued the experimental technique used engths and weaknesses of the report			
important aspects (especially the controversi	ive summary of the performances the reporter a of ones) • the reviewer's personal opinion was in -trivial and demonstrated, where possible, the re- by the reporter and the opponent	evidence (nat just superficial abservations) •		
The reporter, opponent and reviewer e Consider the following suggestions to a Select each partial grade from each sed	odd to or deduct from the initial 5 points. tion and write it in the corresponding box. to questions were posed or not finding shortco Opp.: Yin Cheek Chey 5 Physics ±3 Correct and relevant physics			
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression		
Quality of experimental technique(s) Structure Explanation of formulae and symbols	Opponent ±1 Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in	Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the		
Appropriate models, conformity of dimensions fitting — Slides, on-site experiments, audio, video, as appropriate	Relevance of the questions Contribution to the discussion	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	Contraction	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 Report	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03		

ight (Round no.):	Room:	F9 Stage:	2	Problem no.:	6
uror: fletmal	Dinest	Signature:	1	101	

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, 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.: Russia 5	Opp.: 10100h 5	Rev.: Balgonia 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 +04	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 +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 parties a
☐ Contribution to the discussion	555	do not bend
7	Final Grade: Opponent	Final Grader Reviewer 7

Scoring Guidelines Fight (Round no.): 4 Room: 9 Stage: 1 Problem no.: 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 is appropriate) • linking of theoretical and experimental findings to draw switeble 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 summary of the performances the reporter and apponent • the reviewer appreciated the important aspects (especially the contraversial cores) • 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.

Re	ep.: Russia Fakhanov S	5	Opp.: Jaiwan	5	Rev.: Bulgaria 5
Ph	ysics ±3	1,5	Physics ±3	1	Physics ±3
13	Correct and relevant ph	ysics	Correct and relevant	physics	☐ Correct and relevant physics
	Scientific approach		☐ Scientific approach		☐ Scientific approach
	Validity of conclusions		T Validity of conclusion	is	☐ Validity of conclusions
-	Accurate answers		☐ Accurate answers		☐ Accurate answers
Pr	esentation ±1		Presentation ±1	0,5	Presentation ±1
\oplus	Clear and understandal	ble	☼ Clear and understand	fable	☐ Clear and understandable
	Appropriate manner		☐ Appropriate manner		☐ Appropriate manner
	Overall impression		☐ Overall impression		☐ Overall impression
Re	porter ±1	3/4	Opponent ±1	0,5	Reviewer ±1
. 🎚	Quality of experimenta technique(s)	ı	Response to the reposition	orter's	Provides a thorough review of report and discussion
· B	Structure		Shows the strong and of the report	d weak points	Expresses own opinion about topics presented or discussed
. 田	Explanation of formula symbols	e and	Finds shortcomings of the report	or errors in	Relevance of questions to both the reporter and the opponent
- P	Appropriate models, co of dimensions	onformity	☐ Relevance of the que	estions	Draws attention to points missed by the reporter or the opponent
- #3	Slides, on-site experime video, as appropriate	ents, audio,	☐ Contribution to the d	liscussion	
· B	References, proper cita ideas and input of othe	itions of			This sheet will be collected by the light assistant, so we can scan it and scal grades - please
	Novelty of the report				archive your partial grant
	Contribution to the dis	cussion			do not bend
F	inal Grade: Reporter	8	Final Grade: Opponent	7	Final Grade: Reviewer Safter IDC feedback and approved by EC on 2011-11-00

ics ±3			
orrect and relevant physics			
cientific approach			
alidity of conclusions			
ccurate answers			
entation ±1			
lear and understandable			
ppropriate manner			
verall impression			
ewer ±1			
rovides a thorough review of eport and discussion			
xpresses own opinion about opics presented or discussed			
elevance of questions to both the eporter and the opponent			
raws attention to points missed y 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			
I Grade: Reviewer 8			

Scoring	(21111/10)	lines
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Fight (Round no.):	4 Room	9 Stage:_	2 Problem no.: 6
Juror:Dina_	Igadi	Signature:	Jonelin

* 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:

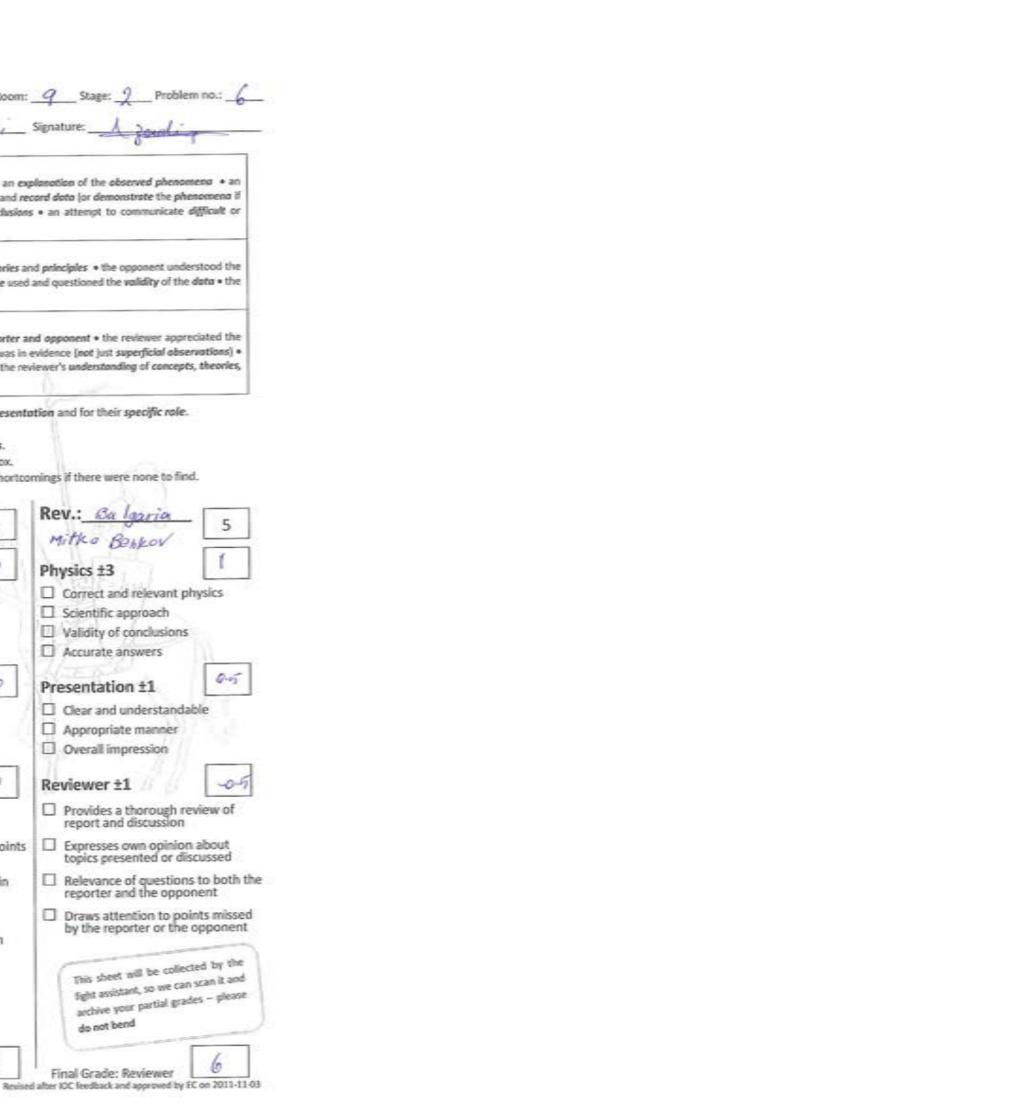
 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 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 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.: Taiwan	5	Rev.: Ba lgaria 5
Physics ±3	1	Physics ±3	0	Physics ±3
Correct and relevant phy	vsirs	☐ Correct and relevant	physics	☐ Correct and relevant physics
☐ Scientific approach	1777	☐ Scientific approach	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	☐ Scientific approach
☐ Validity of conclusions	118	☐ Validity of conclusion	ıs	☐ Validity of conclusions
☐ Accurate answers		☐ Accurate answers		☐ Accurate answers
Presentation ±1	0	Presentation ±1	0	Presentation ±1
☐ Clear and understandab	le	☐ Clear and understand	dable	☐ Clear and understandable
☐ Appropriate manner		Appropriate manner		☐ Appropriate manner
Overall impression		Overall impression		Overall impression
Reporter ±1	0	Opponent ±1	0	Reviewer ±1 // 40-5
Quality of experimental technique(s)		Response to the reposition	orter's	Provides a thorough review of report and discussion
☐ Structure		Shows the strong and of the report	d weak points	Expresses own opinion about topics presented or discussed
 Explanation of formulae symbols 	e and	☐ Finds shortcomings of	or errors in	☐ Relevance of guestions to both th
Appropriate models, co	nformity	the report Relevance of the que	estions	reporter and the opponent Draws attention to points missed
Slides, on-site experime video, as appropriate	ents, audio,	☐ Contribution to the d		by the reporter or the opponent
References, proper cital ideas and input of other	tions 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 parson s
☐ Contribution to the disc	cussion			do not bend
Final Crades Banastas	6	Final Grade: Opponent	5	Final Grade: Reviewer 6



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Fight (Round no.): 4 Room: 9 Stage: 2 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:

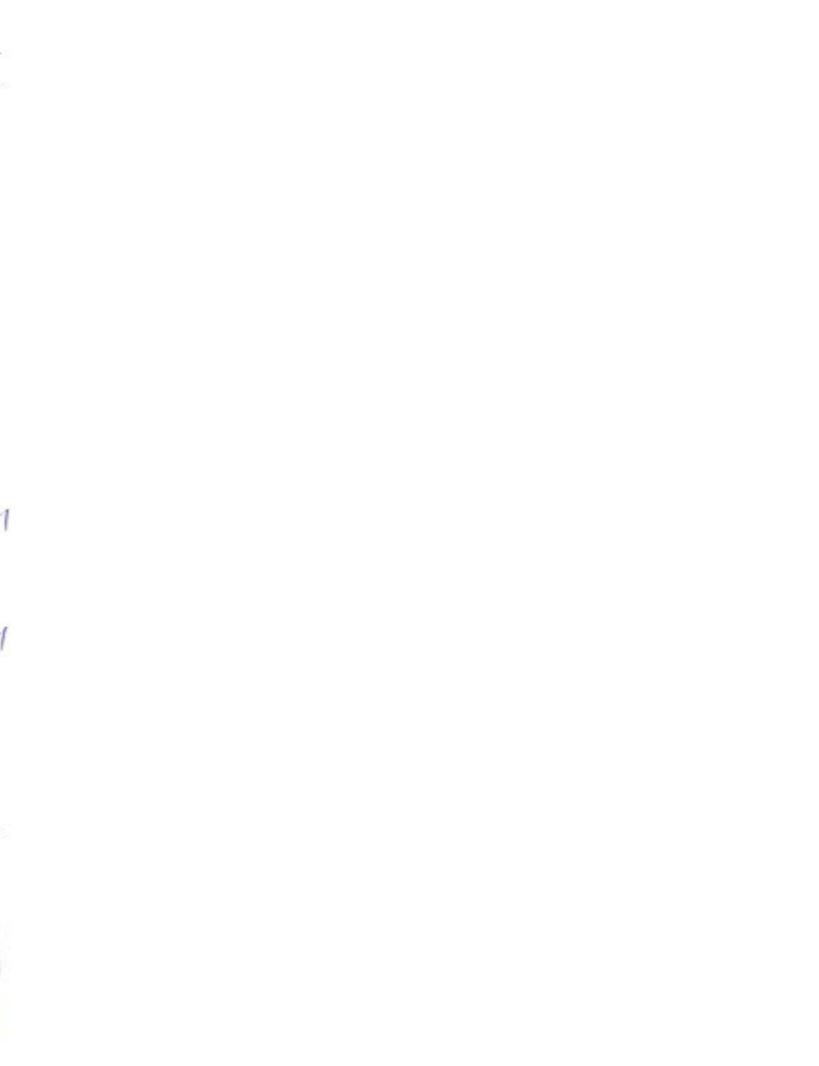
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted 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 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 purish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

	Chieh Chena	and Destant
Rep.: Stepan Zakhazov 5	Opp.: 5	Rev.: Miko Bentov 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 ☐ 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 // // //
☐ 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 grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5 after 10C feedback and approved by EC on 2011-11-08



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ight (Rou	und no.):_	4	Room:	9	Stage	2		Problem no.:	6	
	Beni			Cionaty	ma-	3.	iżn			

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 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.: Stepan Zalharev 5	Opp.: Yn - Chich Chang 5	Rev.: Mitto		
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	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 are		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03		



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Scoring	Cuida	linoc
SCULIIIU	Gulue	111163
Section	@ 611 61 61	

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Fight (Round no.): Roon	nc	Stage: Pro	blem ng:
Juror: AALLINSON	Signature	Alm	All

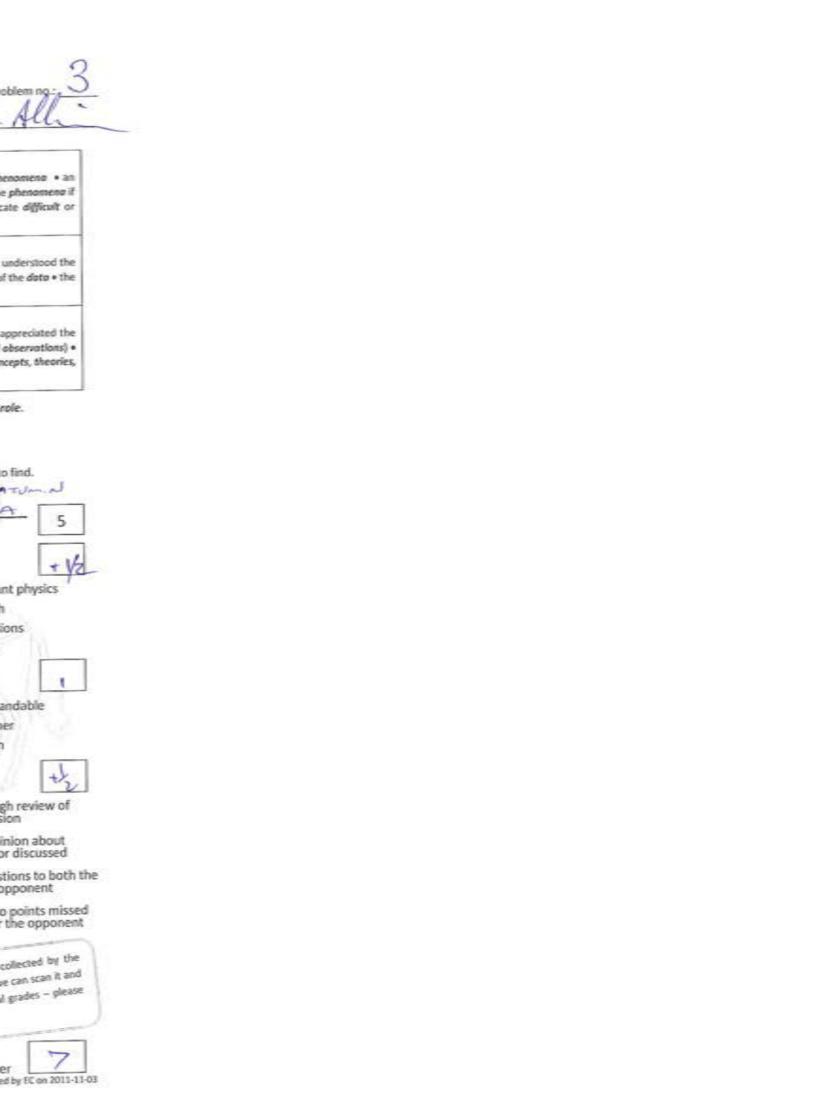
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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
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.

Don't punish missing 'answers' when no Koo Yu Ku	questions were posed or not finding shortco	VITACI MATUMIN
Rep.: TAWAN 5	Opp.: 601GARIA 5	Rev.: RASIA 5
Physics ±3	Physics ±3	Physics ±3 + V2
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions ws55.451	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 - \frac{1}{2}	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner To Aut 2005	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
☐ Quality of experimental technique(s) floreof.	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 of dimensions	the report 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	inclear not formation to the discussion) tolking formation of muscle - proport of muscle - proport	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	talky for purpose	e C fight assistant, so we can use archive your partial grades - please
☐ Contribution to the discussion 42	of muscle	do not bend



Fight (Round no.): _	4	Room:	F9	_Stage:	3	_ Problem no.: _	3	
luror: Helmut	Dim	st	Signat	ure:	10	d		

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
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 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.: 10 isonu 5	Opp.: Bulgana 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 10-2	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 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 seales - please			
☐ Novelty of the report		archive your partial by			
☐ Contribution to the discussion		do not bend			
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Fafter IOC feedback and approved by EC on 2011-11-0.			



Scoring Guid	deline	5 Juror: Kulius		9 Stage: 4 Problem no.:			
application of appropriate math	emotics • reason ticol and experi	rable experimental technique imental findings to draw so	e to gother and rec	nionation of the observed phenomena + an cord data (or demonstrate the phenomena if s + an attempt to communicate difficult or			
An opposition should she the accordent challenged the n	ow that: eporter's unders ted • the oppon	standing of the presented co ent critiqued the experiment	tol technique used	nd principles • the opponent understood the and questioned the validity of the data • the			
important aspects (especially the	ng an objective e controversiol o emotive, non-tri	ones) • the reviewer's person Wal and demonstrated, who	of opinion was in a re possible, the rea	nd opponent • the reviewer appreciated the evidence (not just superficial observations) • riewer's understanding of concepts, theories,			
The reporter, opponent and Consider the following sugge Select each partial grade fro Don't punish missing 'answ Rep.: Taiwan Kao Yu Ku	estions to add om each section ers' when no q	to or deduct from the init n and write it in the corres	ponding bax.	Rev.: Russia Vitaly Maturia 5			
Physics ±3	±1	Physics ±3	1	Physics ±3			
Correct and relevant ph Scientific approach Validity of conclusions Accurate answers		☐ Correct and relevant ☐ Scientific approach ☐ Validity of conclusio ☐ Accurate answers		☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers			
Presentation ±1	1 10	Presentation ±1	25	Presentation ±1			
☐ Clear and understandab ☐ Appropriate manner ☐ Overall impression		☐ Clear and understar ☐ Appropriate manne ☐ Overall impression		☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression			
Reporter ±1		Opponent ±1	0.5	Reviewer ±1 // /			
Quality of experimental technique(s)		Response to the rep	orter's	Provides a thorough review of report and discussion			
☐ Structure		El Shows the strong ar	nd weak points	☐ Expresses own opinion about			
Explanation of formulae and symbols		of the report Finds shortcomings the report	or errors in	topics presented or discussed Relevance of questions to both reporter and the opponent			
 Appropriate models, co of dimensions 	nformity	☐ Relevance of the qu	estions	F Draws attention to points miss			
Slides, on-site experime video, as appropriate	ents, audio,	☐ Contribution to the	discussion	by the reporter or the opponer			
References, proper cita ideas and input of othe	tions of			This sheet will be collected by the fight assistant, so we can scan it an			
□ Novelty of the report				archive your parties or			
☐ Contribution to the disc	russion			do not bend			

corina	Guidelin	es Juror: Kuliks	4 Room:	9 Stage: 4 Problem	n no.:
coming	Garasiii	Juror: Purito	eyi .	Signature:	
plication of approp propriate) • linking	he appropriate concepts winte mathematics • rea	sonable experimental technique perimental findings to draw sui	to gother and rec	lonation of the observed phenom ord data (or demonstrate the phe • an attempt to communicate of	nomena il
the opponent chall propriate mathem	atics presented + the opp	derstanding of the presented con ponent critiqued the experiments angths and weaknesses of the rep	of technique used a	d principles • the apponent under and questioned the validity of the	rstood the data • the
portant aspects (e ch personal opinio	eded in giving an object specially the controversi as were informative, nor	al ones) . the reviewer's persona	of opinion was in e e possible, the rev	nd opponent • the reviewer appre evidence (not just superficial obser- iewer's understanding of concepts	ryptions) *
The reporter, op Consider the folion Select each partic	ponent and reviewer e owing suggestions to a al grade from each sec sing 'answers' when n	ach start with 5 points. add to or deduct from the initi tion and write it in the correst	al 5 points. ponding box. t finding shortcor	mines if there were none to fine Rev.: Russia Vitaly Mastumi	
rysics ±3	±1	Physics ±3	1	Physics ±3	
Correct and re Scientific appr Validity of con Accurate answ	oach iclusions	☐ Correct and relevant ☐ Scientific approach ☐ Validity of conclusion ☐ Accurate answers		☐ Correct and relevant pl ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	nysics
resentation :	H1	Presentation ±1	95	Presentation ±1	
Clear and und Appropriate n Overall impre	nanner	☐ Clear and understand ☐ Appropriate manner ☐ Overall impression		☐ Clear and understanda ☐ Appropriate manner ☐ Overall impression	ble
eporter ±1		Opponent ±1	0.5	Reviewer ±1	1
Quality of exp technique(s)	erimental	Response to the representation	orter's	Provides a thorough re report and discussion	view of
Structure		Shows the strong an of the report	d weak points	Expresses own opinion topics presented or dis	about cussed
Explanation of symbols	f formulae and	Finds shortcomings of the report	or errors in	Relevance of questions reporter and the oppo	s to both the nent
Appropriate n of dimensions	nodels, conformity	☐ Relevance of the que	estions	Draws attention to pol by the reporter or the	nts missed
Slides, on-site video, as appr	experiments, audio ropriate	Contribution to the	discussion		
	roper citations of			This sheet will be collect fight assistant, so we can	scan it and
Novelty of the				archive your parties of	les - piease
Contribution	to the discussion		- 100-00-00-00-00-00-00-00-00-00-00-00-00-	do not bend	
			-1		7

Fight (Round no.):	4	Rooms	9	_Stage:	3	Problem no.:	_3_
luror: Dina	170	1:	Signatu	ire: 1	20	die	2-12-2

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

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.: taiwan 5	Opp.: Belgana 5	Rev.: Russia 5			
Hao Yu Ku	Simeon stefanov	vitalii reatunin			
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 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 ti			
 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 parish o			
☐ Contribution to the discussion		do not bend			
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer			



Fight (Round no.):	4	Room:	9	Stage:	3	Problem no.:	3
Juror: Kerry P						0	

A report should include:

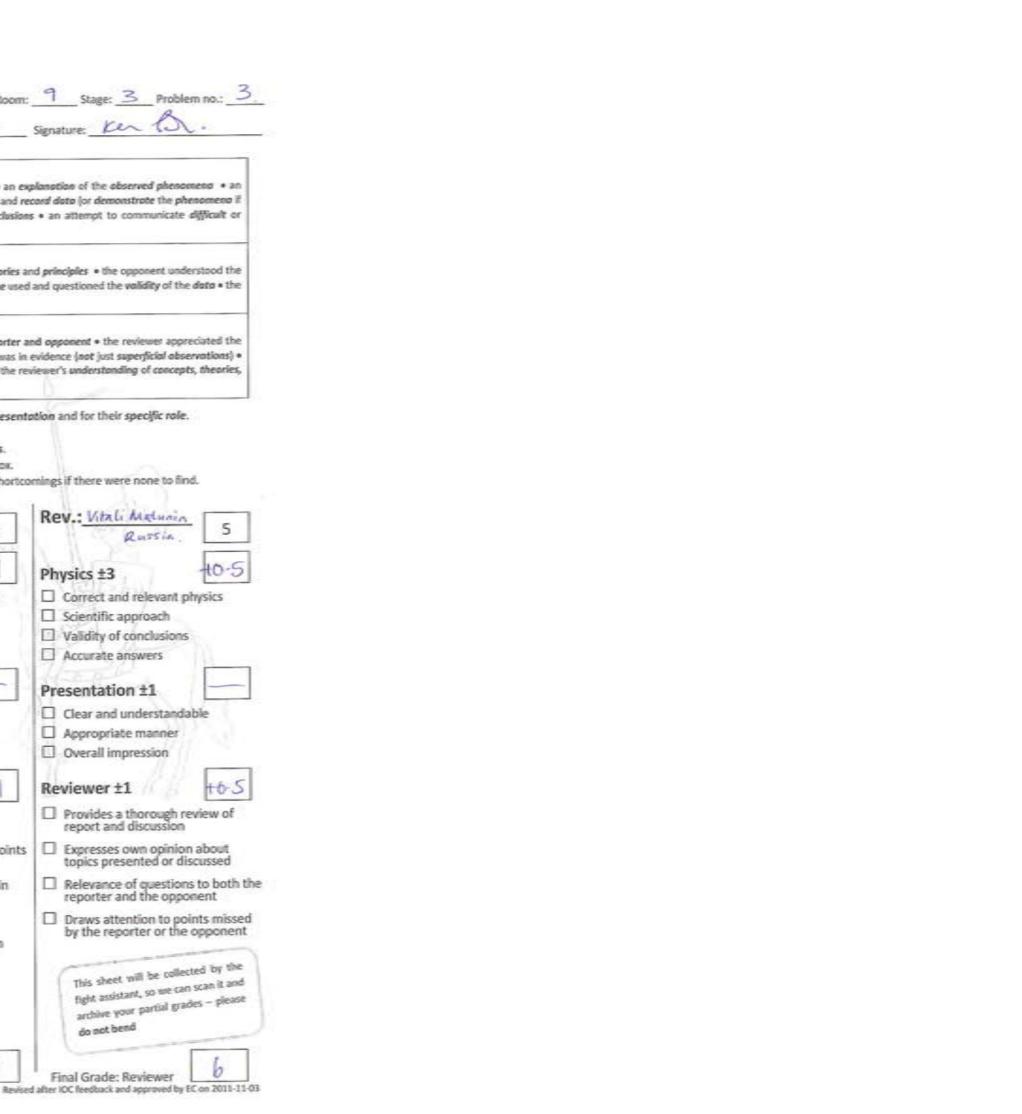
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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 apponent challenged the reporter's understanding of the presented concepts, theories and principles * the apponent understood the appropriate mathematics presented * the apponent orbiqued 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 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 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.: kao Yu ku 5	Opp.: Sone Stefano 5	Rev.: Vitali Maturia 5
Physics ±3	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 -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	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 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
☐ Novelty of the report		archive your parties to
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer 6



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ight (Round no.):	4	Room:	9	Stage	3	_ Problem no.: _	3	
	8			Cionah	inte	Bui	nin	

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 apponent.
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- 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.: Hao Yu Ku 5	Opp.: Simon 5	Rev.: Vitalii Maturin 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 of
☐ Contribution to the discussion	65.	do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-0



9

Round: Room: Fight Assistants: Stage 3 Stage 4

		Stage 1		Stage 2		Stage 3			Stage 4			
Team Juror	Bulgaria Rep	Russia. Opp	Taiwan	Rep	Opp	Bulgaria	T _{eiven} Rep	Opp	Rev	Rep	Орр	Rev
Alan Allinson (chair)	6	7	7	5	6	7	4	4	7			
Helmyt Dürrast	6	6	6	7	7	7	6	5	7			
Volodymyr Kulinskyi	6	7	8	8	7	8	5	7	7			
Dina Izadi	5	6	6	6	5	6	4	6	7			
Kerry Parker	4	5	5	7	8	8	4	5	6			
Burin Asavapibhop	7	5	6	3	6	6	5	6	6			
Acting Team Member	Aleksanday Ivanov	Stepan Zakhayou	_	Stepan Zakharow	Yin - Chieh Cheny	Mitko Benkov	Hao yu Ku	Simeon Stefanov	Vtalii Matrunin			
Rejected Problems					<u> </u>							
Accepted Problem		14			6			3				