Scoring	(allin	P	iines
Scoring	OUIU	•	11100

ight (Round no.):	L ₁ Room	: 1_Stage	: 3 Problem	n no.: _ 5
uror: PETER	FENE	Signature:	124	

A report should include:

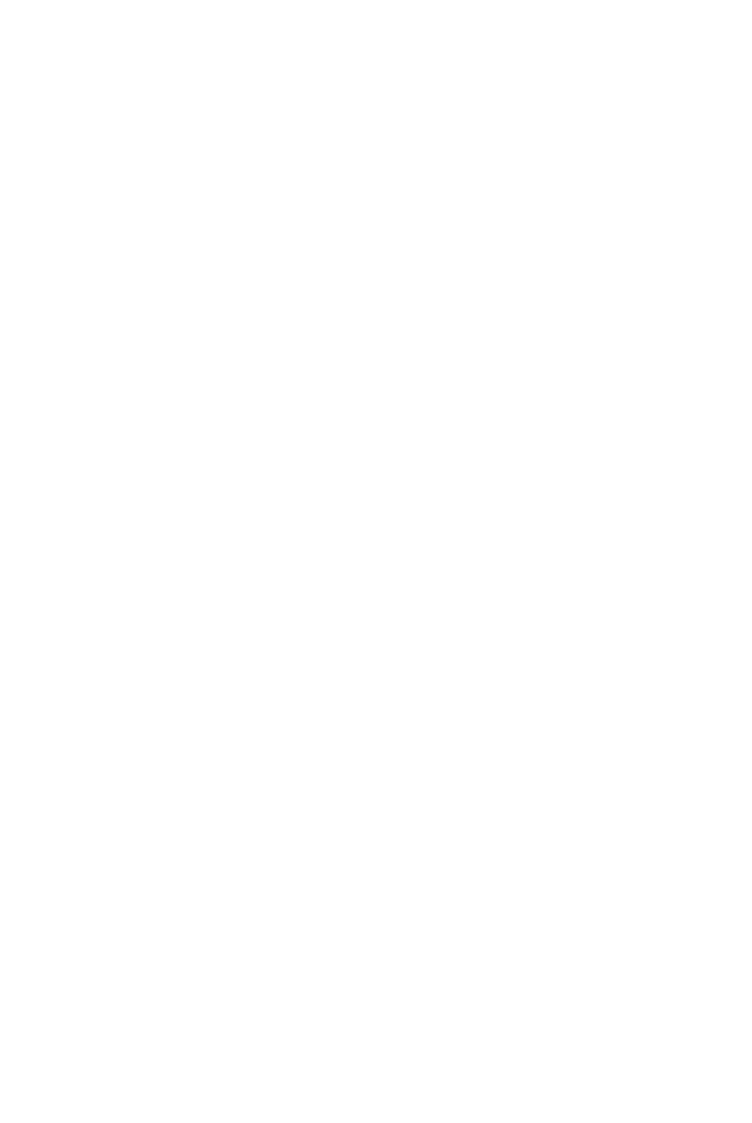
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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	Opponent ±1	Reviewer ±1 6 6 0
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions	☐ Shows the strong and weak points of the report ☐ Expresses own opinion a topics presented or discussions topics presented or discussions topics presented or discussions topics presented or discussions topics. ☐ Finds shortcomings or errors in the report ☐ Relevance of questions to point ☐ Relevance of the questions ☐ Draws attention to point	
☐ 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 ☐ Novelty of the report		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent 5	Final Grade: Reviewer ### ### ### ### ### #### ###########



Scaring Guidalin	Fight (Round no.): 2 Room:	Stage:
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 n-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. a 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 X,	☐ 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

-			
Sco	PIDA	Guid	olino
JUU	IIIIY	Guiu	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



	4.	1		3	8
Fight (Round no.):	- Ro	oom:	Stage:	Produc	em no.:
Juror: RUMD	RAGE	Signat	ure:	udu	eis

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.): 4	Room:	Stage: 3	Problem no.:
Juroc Bronat Hoftman			= 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 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 paymer by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 7



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Scoring	(alline)	lines
Jeoning	ONING	111160

ight (Round no.):	4	Room:	State	3	Problem no.:	8
NEGN			nature:	OI.		

A report should include:

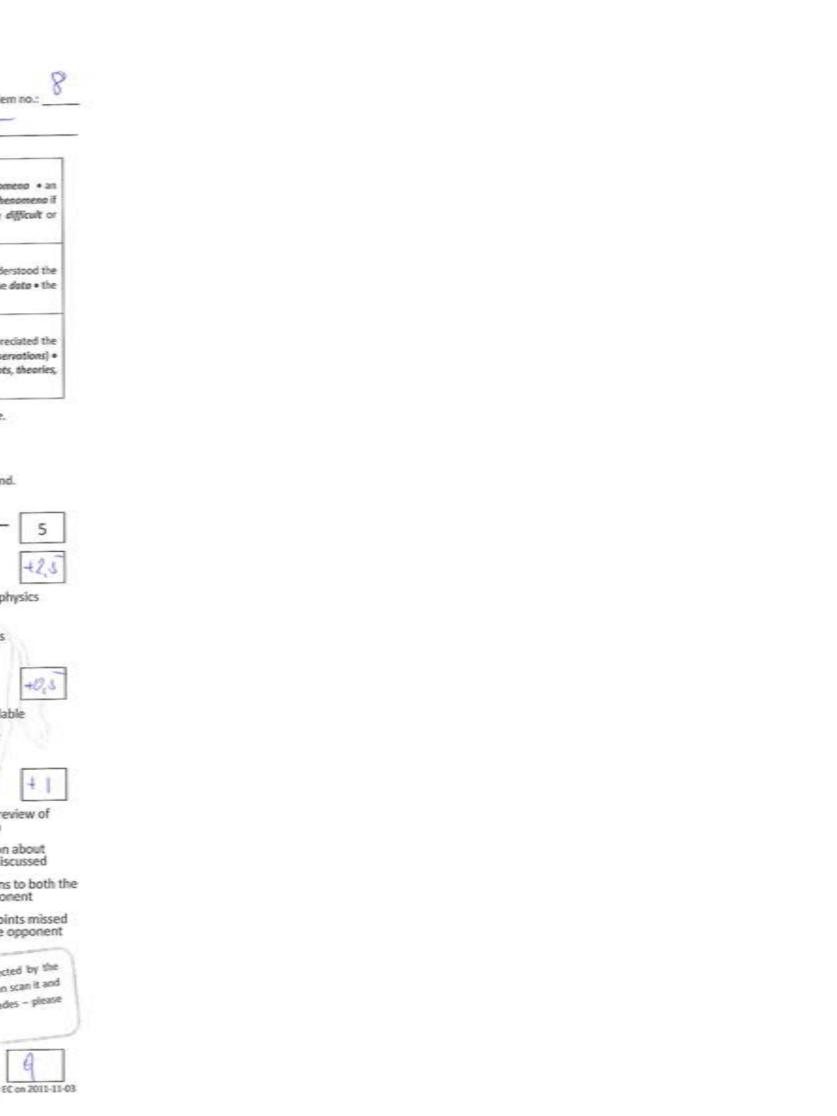
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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.: Rep.: 5	Opp.: Saiter land 5	Rev.: Sugarant 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 +0,5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	☐ Relevance of guestions to both the
☐ Appropriate models, conformity	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 6
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Lafter IDC feedback and approved by EC on 2011-11-03



Sco	rina	Guide	lines
	ımı	OUINC	111163

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

A report should include:

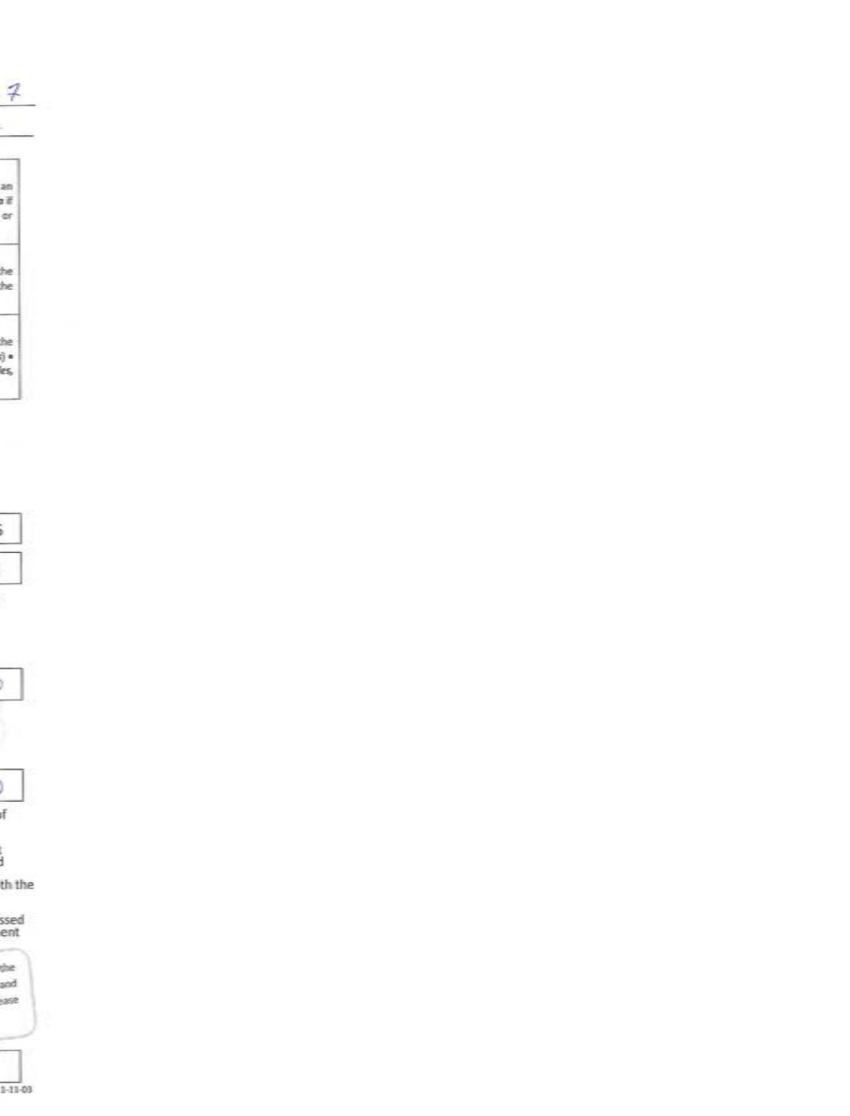
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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,
 principles and appropriate mathematics used by the reporter and the apponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: SINGAPURE 5	Opp.: BELACUS 5	Rev.: SMITZEQ 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 made a please	
☐ Novelty of the report		archive your paroas gran	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6 alter IOC feedback and approved by EC on 2011-11-08	



Scoring Guidel	ines Suror: Ulvo Room:	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 • ti	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 c, 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.: Sixtzel find.
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	-/	and about will be collected by the

	Fight (Round no.): 4 Room:	1 Stage: 2 Problem no.: 7
Scoring Guideli	nes Illian	Signature:
	Main: Cov (G	Signature.
A report should include:		
	epts, theories and principles of the problem * an ex- reasonable experimental technique to gother and re-	
appropriate) • linking of theoretical and complex ideas in an effective and understo	experimental findings to draw suitable conclusion	s • an attempt to communicate difficult or
An opposition should show that		
	understanding of the presented concepts, theories a	nd principles • the opponent understood the
appropriate mathematics presented • the apponent appreciated and highlighted the	apponent critiqued the experimental technique used strenaths and weaknesses of the recort	and questioned the volidity of the data • the
A review should show that:		
	ective summary of the performances the reporter a	nd apponent • the reviewer appreciated the
	ersiol ones) • the reviewer's personal opinion was in non-trivial and demonstrated, where possible, the re-	
principles and appropriate mathematics w		A
The grade for each of the three team	ns consists of a partial grade for physics, presents	ation and for their specific role.
 The reporter, opponent and reviewe 	er each start with 5 points.	
	to add to or deduct from the initial 5 points. section and write it in the corresponding box.	
그 아이들 아이들 때 이 때 아니면 하는데 하는데 하는데 하는데 어느 때 아니다.	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.: Jun Tzen im 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	Response to the reporter's	☐ Provides a thorough review of
technique(s)	solution	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 apponent
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 com- archive your partial grades - please
Contribution to the discussion	2	do not bend
Contribution to the discussion		

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
☐ 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 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	1000
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	Ines
JUVIIII	GRIR	~ 1	111100

6			7	7
ight (Round no.):	Room:	Stage:	Problem no.:	
me RECNE	A. Sier	sature: Wu	200	

A report should include:

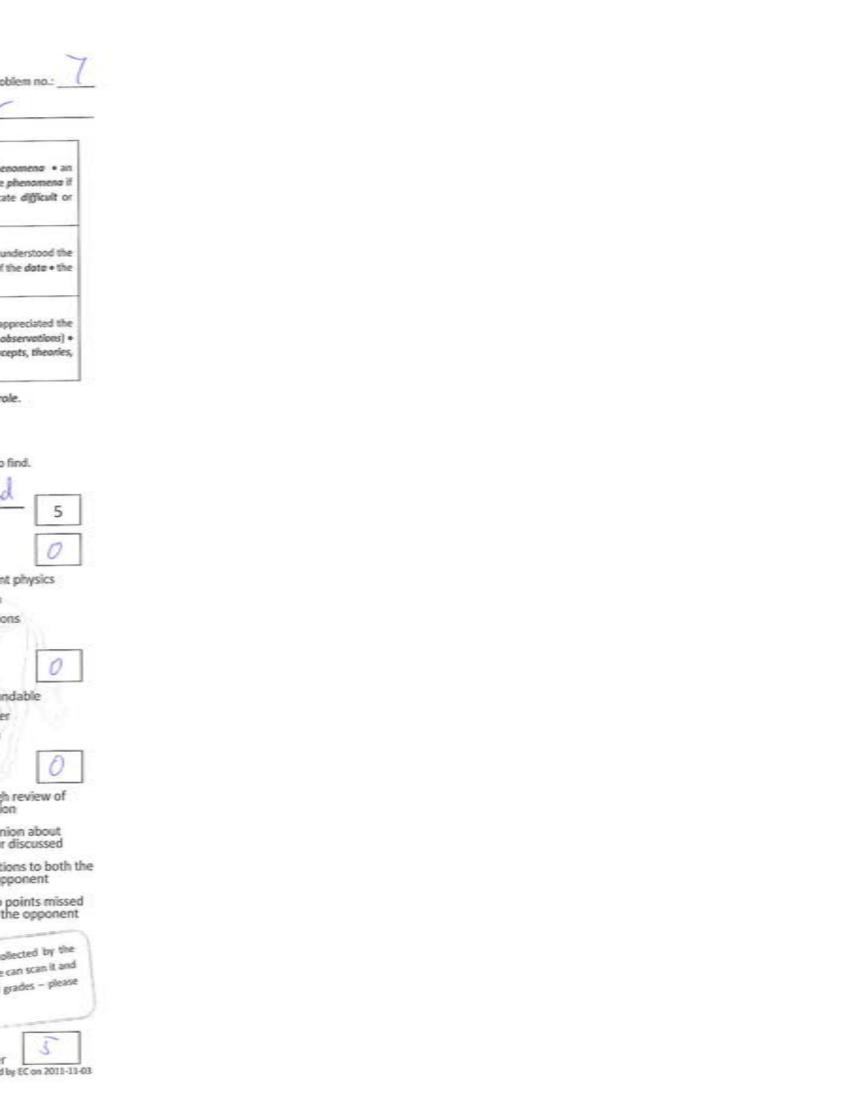
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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 salter IDC feedback and approved by EC on 2011-11-03



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Sec	oring	(-1110)	0	ines
200	111119	SAIM	01	11169

Fight (Round no.):	t Room:	Stage: 2 Proble	em no.:
		ature SADep	rer

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	1/1
☐ Scientific approach	

Scientific approach
Validity of conclusions
Accurate answers

7.47 0=016	6.1
Presentation ±1	0
☐ Clear and understandable	2
☐ Appropriate manner	
Overall impression	
Reporter ±1	0

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

-	DO GELLE	V
	Explanation of	of 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.	12,026	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: 2	Stage:	_ Problem no.: _ T
JUNOS: KONDRAL	UL Signa	ture: Uu/	11115

A report should include:

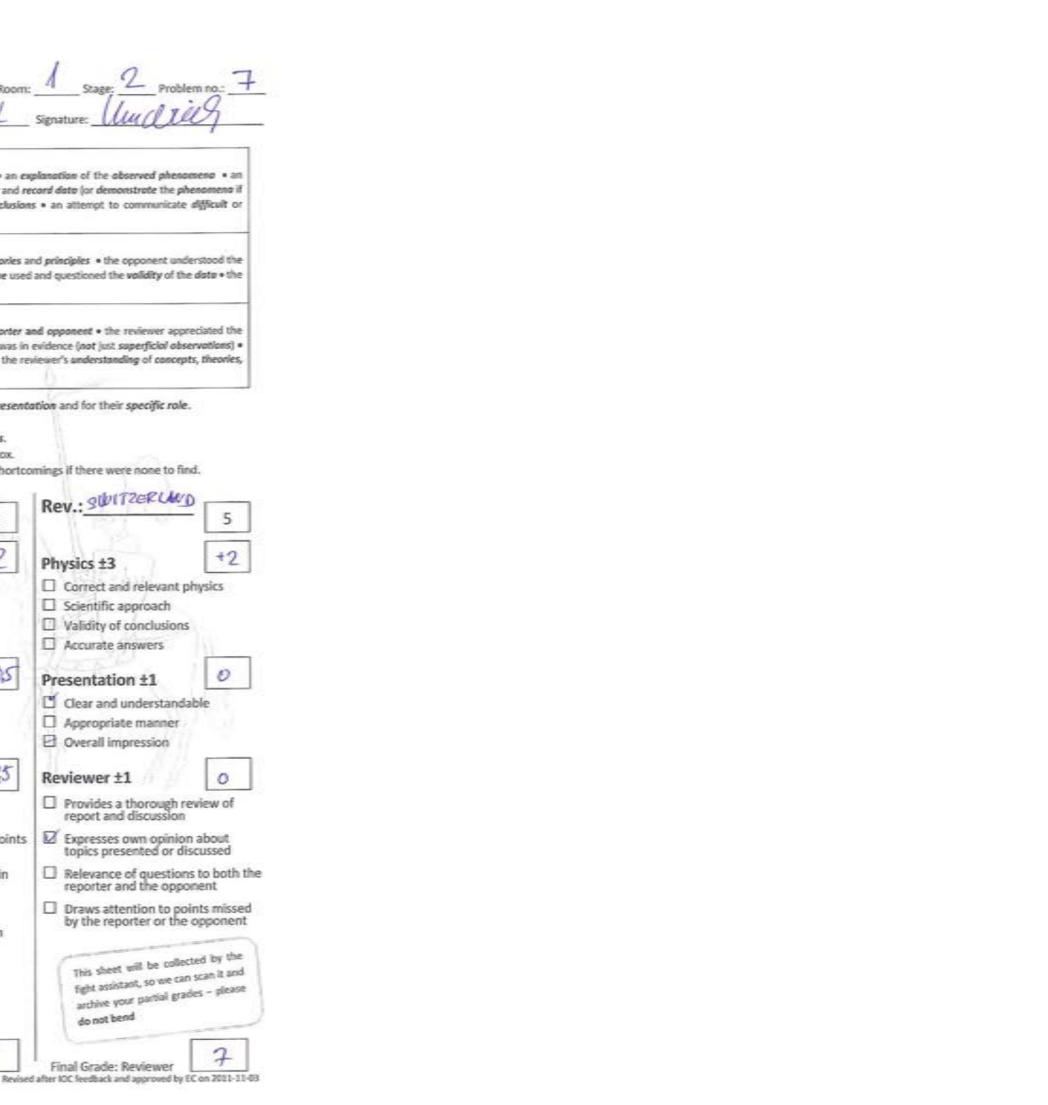
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical 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.: SWGNORE		Opp.:60 HEUS		Rev .: 9101726RUW	0
кер.: 3800 8 020	5	Opp.:	_ 5	Rev.:	- 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	ıs	☐ Validity of conclusio	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 report and discussion	eview of
☐ Structure		Shows the strong and weak points of the report		Expresses own opinior topics presented or di	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 qu	estions	☐ Draws attention to po	ints missed
☐ Slides, on-site experii video, as appropriate		Contribution to the		by the reporter or the	
References, proper of ideas and input of oti	itations of			This sheet will be collect fight assistant, so we can	ted by the scan it and
☐ Novelty of the report				archive your payour by	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	a
Fight (Round no.):	_Room:_/	Stage: Probl	lem no.
Juror: KUND 124	al_ Signature	leed	ial

A report should include:

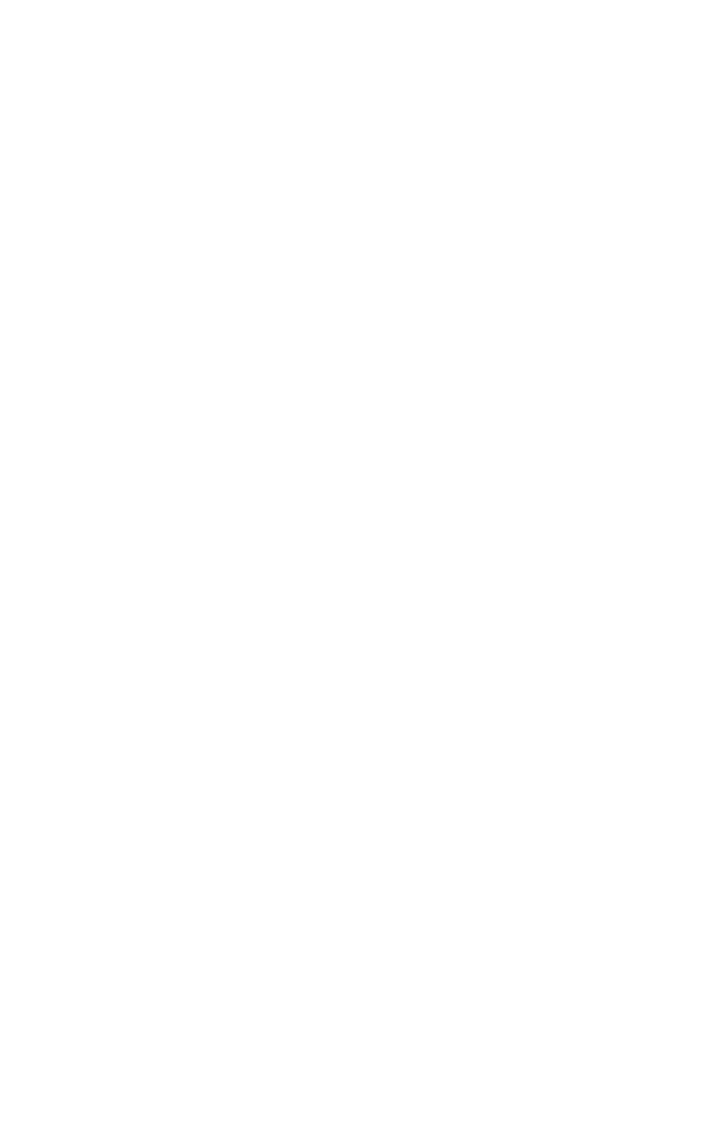
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical and experimental 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.: SOU SA PORE 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	**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; 6	Stage:	Problem no.: 9 (h	lover)
per Brend Netter				

A report should include:

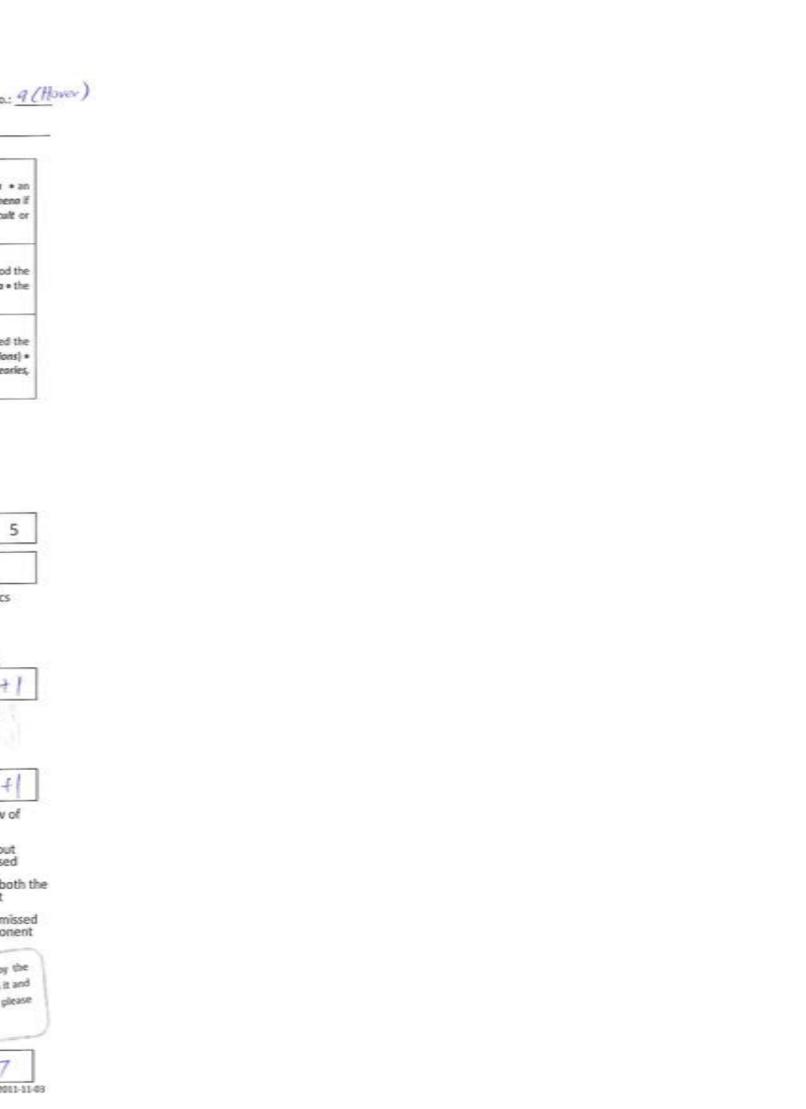
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mothematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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.: Switzerland 5	Opp.: Singapore 5	Rev.: Beloves 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	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	Relevance of questions to both th
Appropriate models, conformity	the report	reporter and the opponent
of dimensions	Relevance of the questions	Draws attention to points missed
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant.
☑ Novelty of the report		archive your partial graces
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	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

1				R
ght (Round no.): 4	Room:	Stage:	Problem no.:	1
- REGNE	R Sar	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. Muland 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
☐ 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:	

ight (Round no.):	4		1 .	1	Problem no :	9
eght (Round no.): uror: SUE				tage:		_
uror: JUC P	CALLE	.10	Signature:	_	F corel	10.0

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		
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	reporter and the opponent Draws attention to points missed		
Slides, on site experiments, audio, video, ayappropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties a		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer		



Fight (Round no.):	4	Rooma	1	Stage:	1	Problem no.:	9	
DUTON PETER	3FX	18(Signati	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:

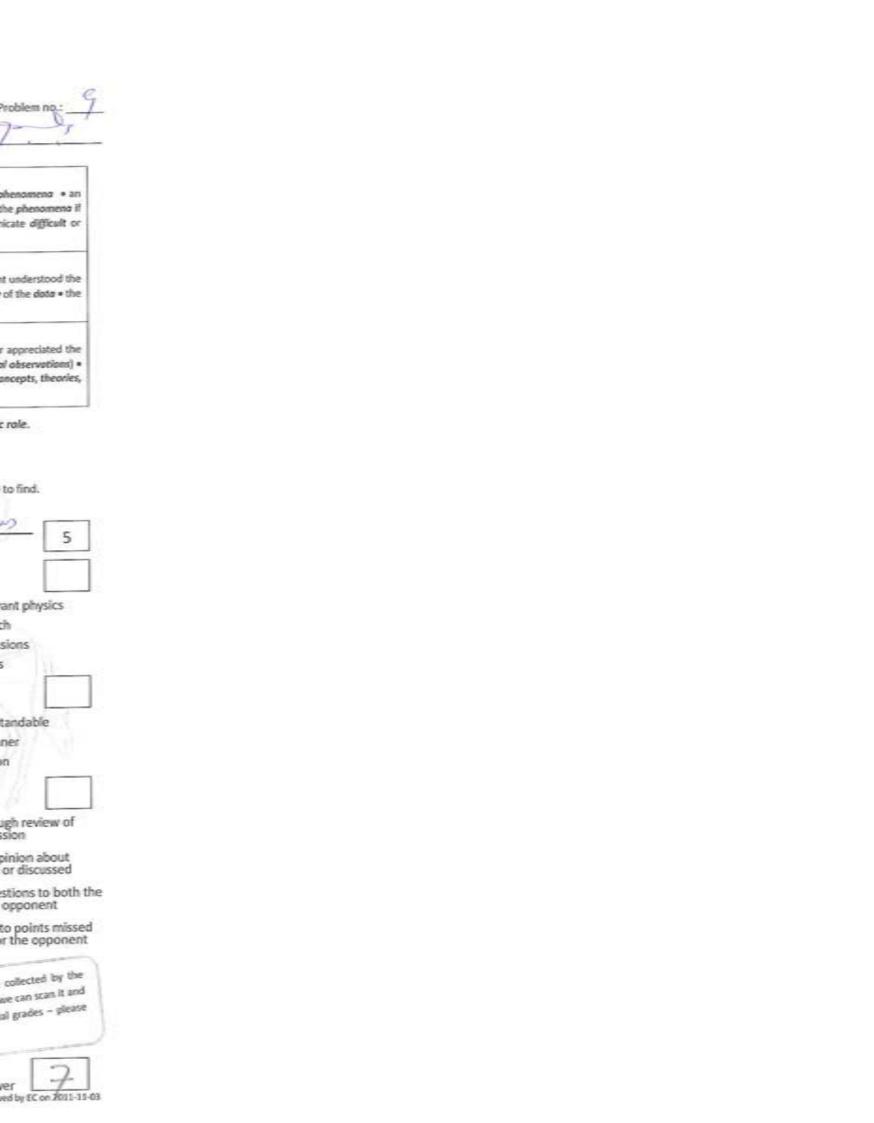
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted 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.: 5×17212 LAVO	5	Opp.: SING APURE	- 5	Rev.: BELAQUIS	5	
Physics ±3	+4	Physics ±3	4	Physics ±3	1	
☐ Correct and relevant physi	cs	Correct and relevant p	hysics	Correct and relevant phy	sics	
☐ Scientific approach	H.	☐ Scientific approach		☐ Scientific approach		
☐ Validity of conclusions	20	☐ Validity of conclusions		☐ Validity of conclusions		
☐ Accurate answers	110	☐ Accurate answers		☐ Accurate answers		
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	L/	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 are symbols	nd	☐ Finds shortcomings or	errors in	Relevance of guestions to both th		
		the report		reporter and the oppone		
 Appropriate models, confo of dimensions 	ot make.	☐ Relevance of the quest	tions	☐ Draws attention to points missed		
Slides, on-site experiment video, as appropriate	s, audio,	☐ Contribution to the discussion		by the reporter or the opponent		
References, proper citatio ideas and input of others	ns 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 discus	sion			do not bend		
Final Grade: Reporter	6	Final Grade: Opponent	6	Final Grade: Reviewer	4	



Scoring Guidelin	Fight (Round no.): Room:	(5)
y carried	Juron Cove	Signature:
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 phenomena if
An opposition should show that: the opponent challenged the reporter's or	derstanding of the presented concepts, theories a oponent 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 sial ones) • the reviewer's personal opinion was in n-trivial and demonstrated, where possible, the re d by the reporter and the opponent	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, present each stort with 5 points. odd to or deduct from the initial 5 points. ction and write it in the corresponding box. so questions were posed or not finding shortco.	
hysics ±3	Physics ±3	Physics ±3
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
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 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
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 pareas or
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11



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

		Stage 1		I	Stage 2			Stage 3			Stage 4	
Team	Switzerland	Singapore	Pelanus	Singapore	Relations	Switzerland	Belanes	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 Degree	5	6	6	8	7	5	а	5	9			
Susan Napier	7	6	ь	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	Um Ping Ken	myan Busserna	Libba Haimbach.	Anastasiya Podnatko	Phyllis Breth	Ju Jun Shen			
Rejected Problems							15 M	oning Byoush				
Accepted Problem	9 House	iciali		1 Sh	odal 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	Guido	inos
Scoring	Guiuei	illes

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

A report should include:

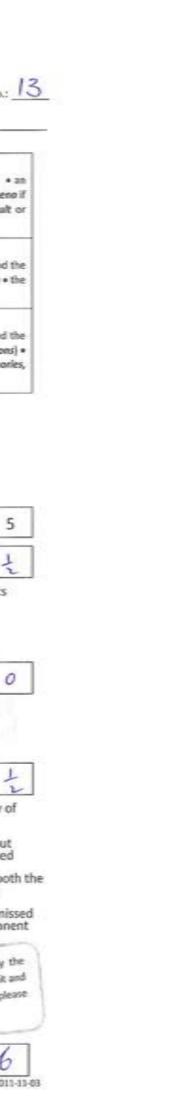
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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 punton midding enswers when no	questions were posed or not mixing shorter	manga a trere were none to ma.		
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	D Overall impression	Overall impression		
Reporter ±1 - 5	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 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 d after IOC feedback and approved by EC on 2011-11-03		



Fight (R	ound no.]:	H	Room;	2	Stage:	1	Problem no.: 15	b
lune	PENG	PAN		Sienati	ute:	1. 9	eng pan	

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.: US 5	Rev.: 10 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☑ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	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 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	(2) 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,		by the reporter or the opponent		
video, as appropriate		a and 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 fight assistant, and grades - please		
☐ Novelty of the report		archive your partus p		
Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03		



Fight (Round no.):	4	Rooms	2	Stage: A	Problem no.:	13
Numer L. Gla		ink		- 11		

A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to 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.: Hungguy		
Chou Hou In	John Luhaun 5	Andres laylo 5		
Physics ±3	Physics ±3 -2	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1 025	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		
 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 Latter IOC feedback and approved by EC on 2011-11-03		



Fight (Round no.): #4	Room: 2 si	tage: 1 Problem no	:13
wor. P. Reichly	Signature:	Rani Reily	4

A report should include:

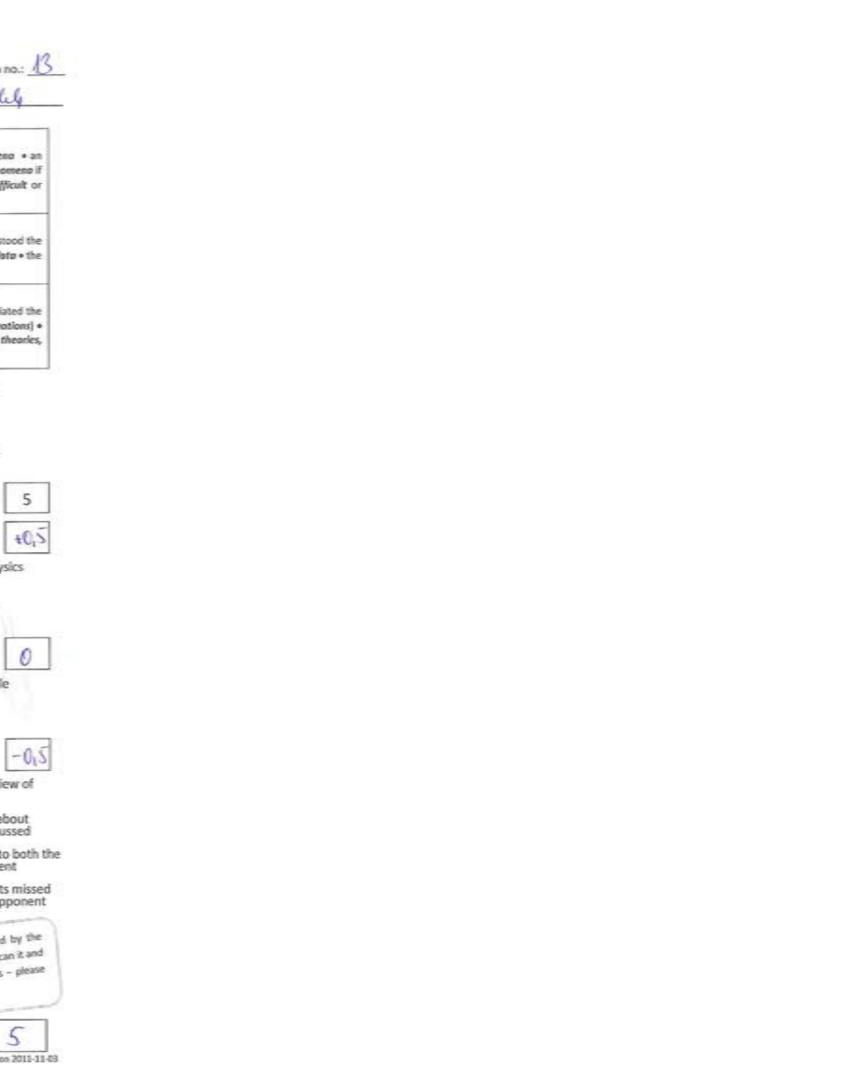
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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
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 th	
☐ Appropriate models, conformity	the report	reporter and the opponent	
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		arthise your partial grand	
☐ 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 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 westfans but no deeptop in	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 / 5	Opp.: <u>U > H</u> 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	Talidity 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 Mangabout	Tiena Bamerki	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	2 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	包 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		arthive 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:

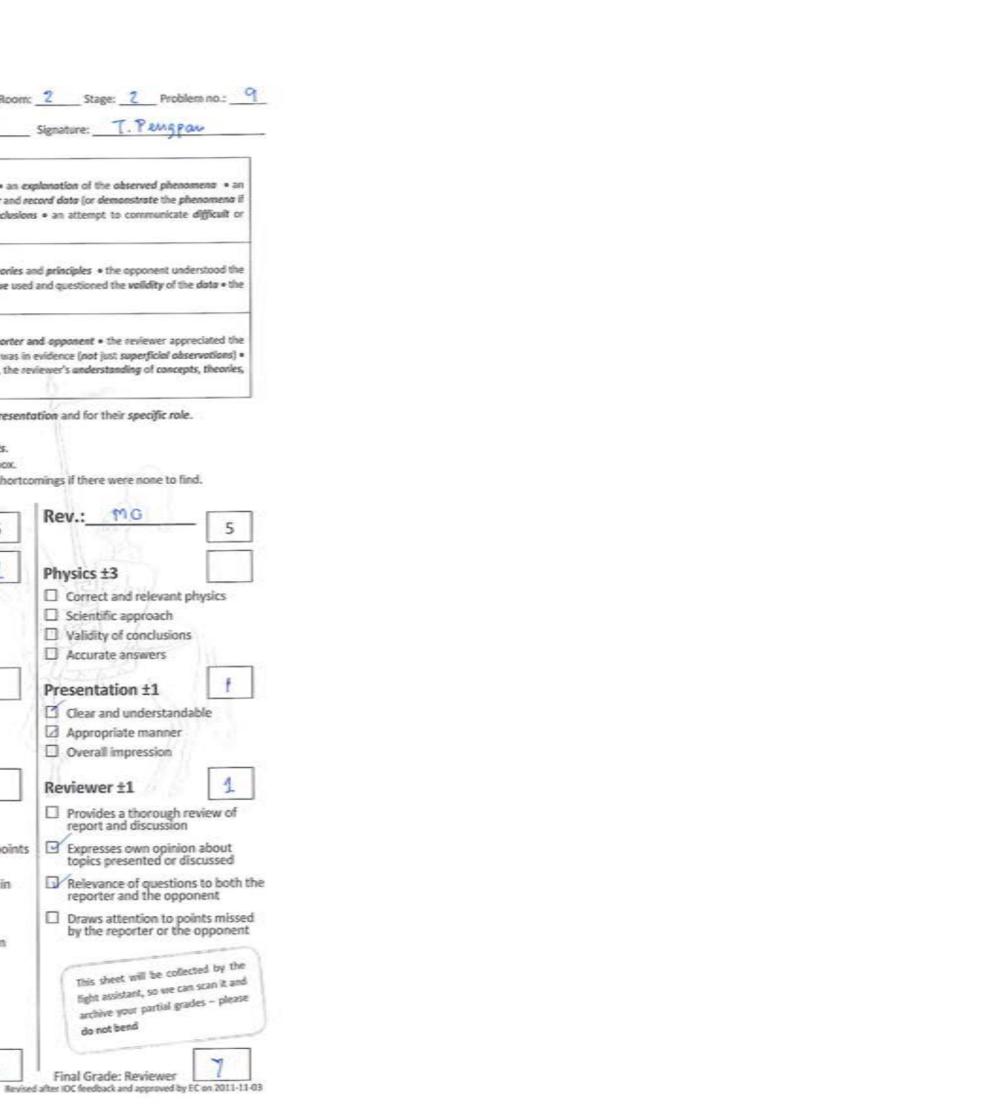
 a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) + linking of theoretical 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.: US 5	Opp.:HU5	Rev.: MG 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	2 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 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 &
☐ 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. GLOU		de	Signati	ure: L. (Tucoleru	

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 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		archive your parties 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	

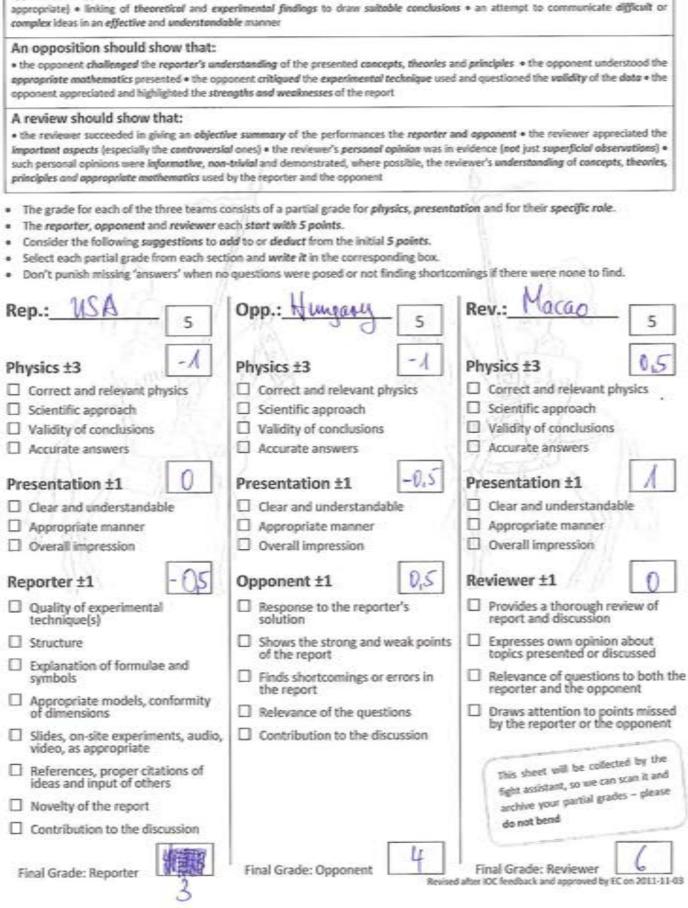


Scoring Guidelines	Fight (Ra	Q-T
A report should include:		

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

* 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 the reporter and the opponent	
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial grant	
☐ Contribution to the discussion		do not bend	
//	4	First Control Bustoness (



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 understand 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 sums 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 stor Consider the following suggestions to odd 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 Mangabet 5 United States	Opp.: Town Banoxxx 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	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, audi video, as appropriate 	io, 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 parsas are
☐ 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 abservations) •
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 -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 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
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Challenge problem # 5 accepted

Ccarina	Guid	plings
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	The state of the s
Andras Lauko	Jingy Xie	John Lukowski
Physics ±3	Physics ±3 +1	Physics ±3 +
Correct and relevant physics		⊞ Correct and relevant physics
毌 Scientific approach	Scientific approach	Scientific approach
Walidity of conclusions	☑ Validity of conclusions	☑ Validity of conclusions
Accurate answers	Accurate answers	Accurate answers
Presentation ±1 + 0.3	Presentation ±1 +012	Presentation ±1
Clear and understandable	Clear and understandable	# Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
☑ Overall impression	Overall impression	Overall impression
Reporter ±1 +03	Opponent ±1	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 parcer or
⊞ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer Ather IOC feedback and approved by EC on 2011-11-09



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	200	colorul	

A report should include:

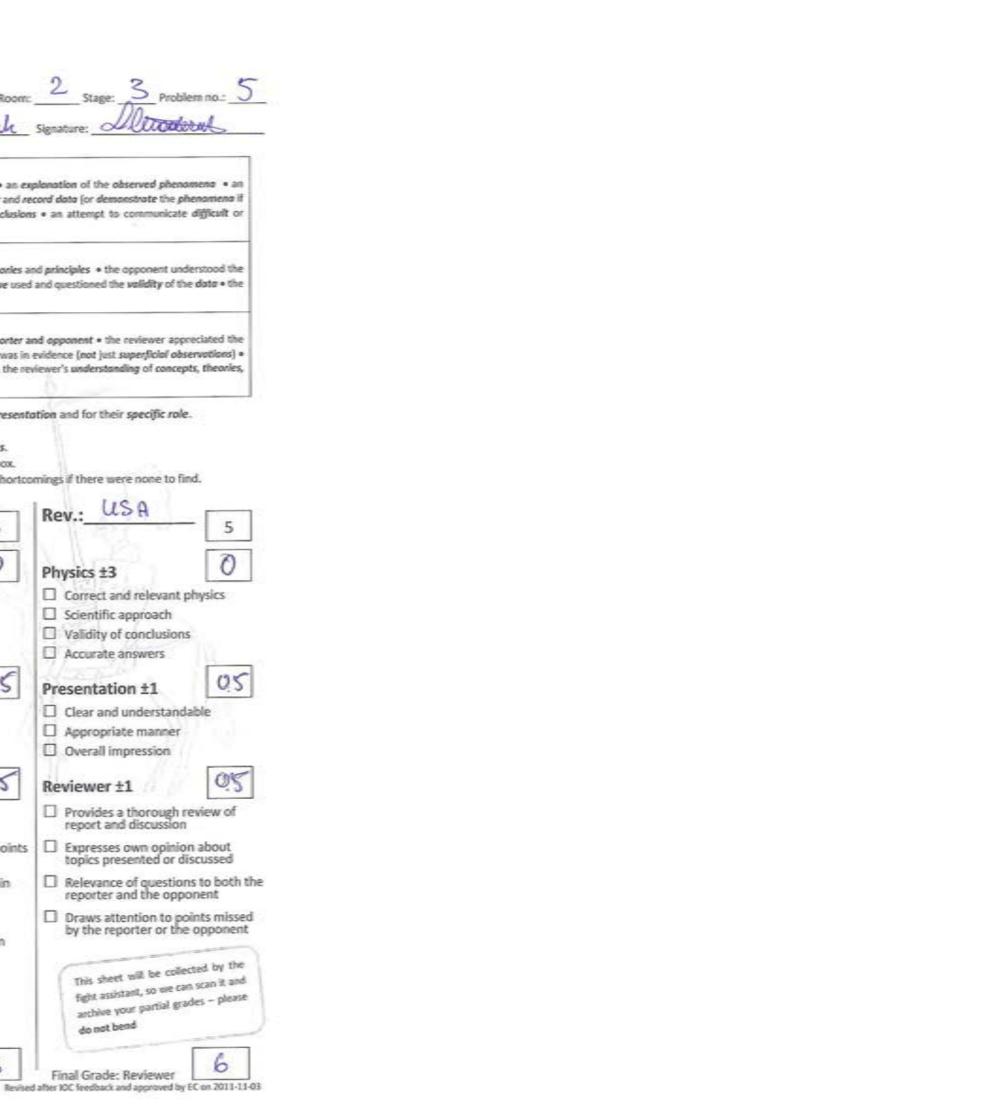
· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mothematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical 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.: timagung 5	Opp.: Mauri	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 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 4	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:	

A report should include:

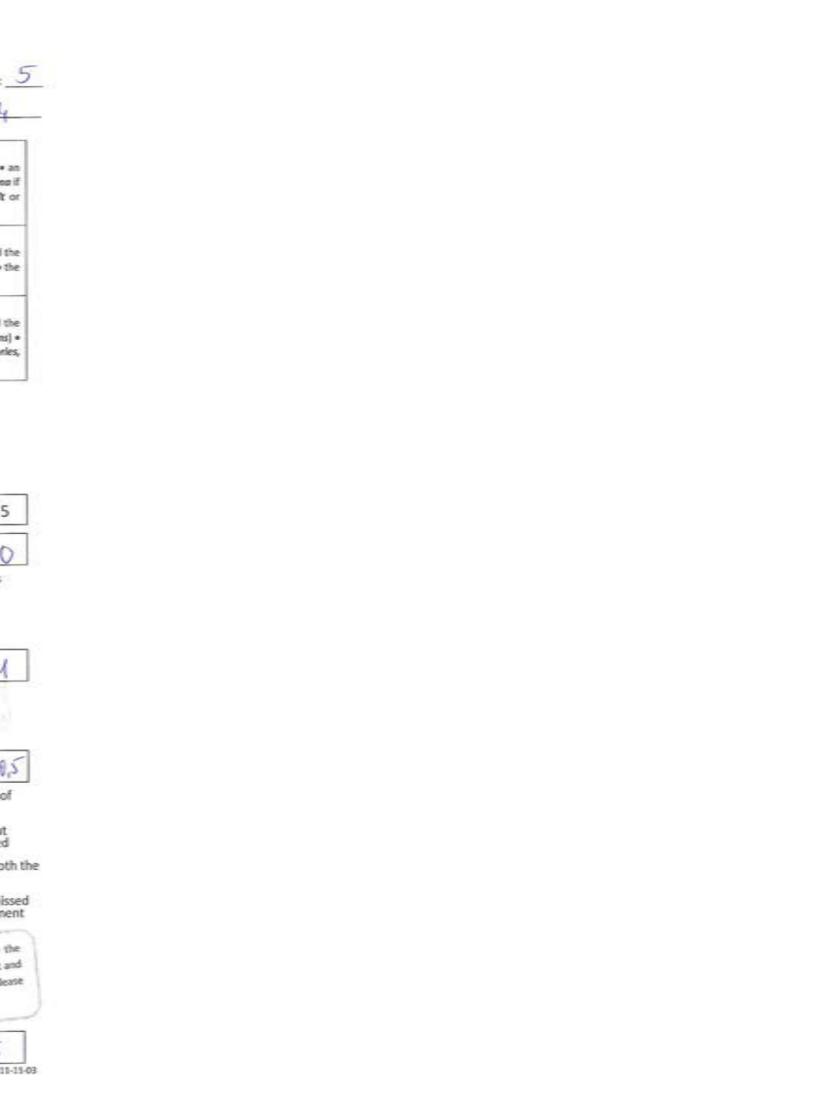
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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.: Musery 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	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	tage: Probl	\$ no.:
Juror: Shehethi	₩OV Signature:	-97	\rightarrow

A report should include:

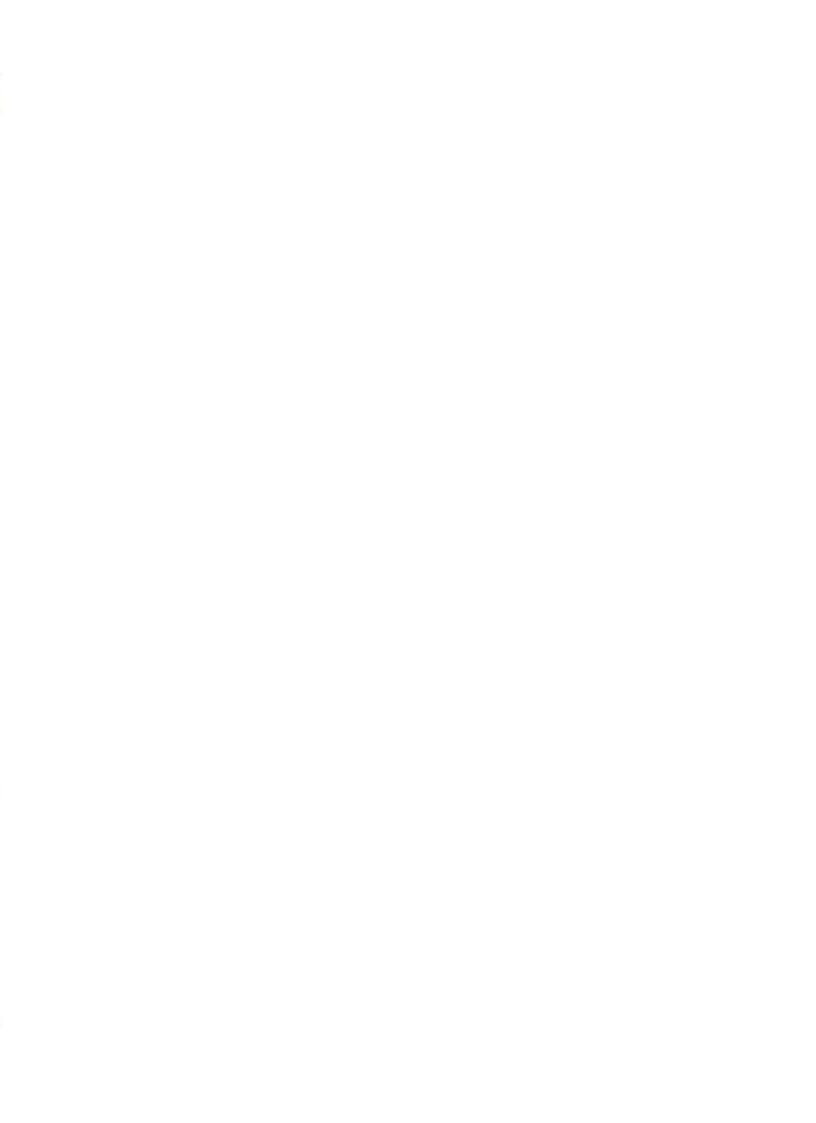
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mothematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if
appropriate) * linking of theoretical 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	Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 40.5	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 40.5	Opponent ±1 46.5	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 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 dater 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: TATYANIA 6.5	Signature: TOS
A report should include:		
 a presentation of the appropriate concepts application of appropriate mathematics • res 	t, theories and principles of the problem • an exponsible experimental technique to gother and neperimental findings to draw suitable conclusionable manner.	ecord data (or demonstrate the phenomena if
	derstanding of the presented concepts, theories a ponent critiqued the experimental technique use engths and weaknesses of the report.	
A review should show that:		
Important aspects (especially the controversi	tive summary of the performances the reporter a ial ones) • the reviewer's personal apinion was in n-trivial and demonstrated, where possible, the re by the reporter and the apponent.	evidence (not just superficial abservations) •
· Select each partial grade from each sec	Opp.:	Rev.: 5 Physics ±3 ☑ Correct and relevant physics + 9 ☑ Scientific approach + 9 □
☐ Validity of conclusions ☐ Accurate answers NO THEOLY Presentation ±1	Validity of conclusions Accurate answers Presentation ±1	✓ Validity of conclusions + 0.25 ☐ Accurate answers 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 40.5
☑ 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

Final Grade: Opponent

 $\ \square$ Novelty of the report

Final Grade: Reporter

☐ Contribution to the discussion

- INC
Signature:
fonation of the observed phenomena • an and ord dota (or demonstrate the phenomena if • an attempt to communicate difficult or
d principles • the apponent understood the and questioned the validity of the data • the
nd apponent • the reviewer appreciated the evidence (not just superficial observations) • iewer's understanding of concepts, theories,
Physics ±3 Correct and relevant physics + 15 Scientific approach + 0 5 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 stan it and archive your partial grades – please do not bend
Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Scoring Guidelin	105 Juror: Loby 9 km	n: 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 debie 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	and principles * the opponent understood the ed 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 an-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, present each start with 5 points. add to or deduct from the initial 5 points. In the corresponding box. In organizations 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 summing or unreprise new-ex-
burneling and address over property over	of or other to have an obligation	100
The grade for each of the three teams or	onsists of a partial grade for physics, presento	otion 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	3
	1 1 I	A No. CO
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/
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
		7/25 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	☐ Relevance of the questions	☐ Draws attention to points missed
of dimensions		by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	
		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		60 110 44
2		7
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer The first IOC feedback and approved by EC on 2001-11-0

Scoring Guidelines	Juror: Church Yorg Li Signature: Church Yorg Li
application of appropriate mathematics • reasonable e	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 understandin appropriate mathematics presented • the opponent on opponent appreciated and highlighted the strengths on	ng of the presented concepts, theories and principles • the opponent understood the itiqued the experimental technique used and questioned the validity of the data • the id weaknesses of the report
important aspects (especially the controversial ones) •	nary 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, porter and the opponent
The grade for each of the three teams consists of The reporter, opponent and reviewer each start	of a partial grade for physics, presentation and for their specific role. t with 5 points. deduct from the initial 5 points.

Consider the following suggestions to an Select each partial grade from each section. Don't punish missing 'answers' when no	on and write it in the corresponding box. onestions 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 +45	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 45	Opponent ±1 †)	Reviewer ±1 71.0
technique(s)	solution	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 ti 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 metal grades – please
Novelty of the report		archive your parcer s
Contribution to the discussion		do not bend
Final Grade: Reporter 4	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.: Justinia 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 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 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 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 learns cons	्रात् इंदेड 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:: Austeria 5	Rev.: GCAMAN 5
Correct and relevant physics	hysics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
□ Validity of conclusions	Validity of conclusions Accurate answers	Discignific approach Display of conclusions Discurate answers
THE SECOND SECON	Presentation ±1	Presentation ±1
Clear and understandable Appropriate manner Overall impression	Appropriate manner Overall impression	Appropriate manner Overall impression
	Opponent ±1 +0-5	Reviewer ±1 8 6-5
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 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		do not bend
———Contribution to the discussion		00 100 000
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer ed after IOC feedback and approved by EC on 2011-11-03

Fight (Round no.): 4	Room: B Stage	Problem no.: 3
INFOR CHAINGOT	Signature:	TENTO

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:

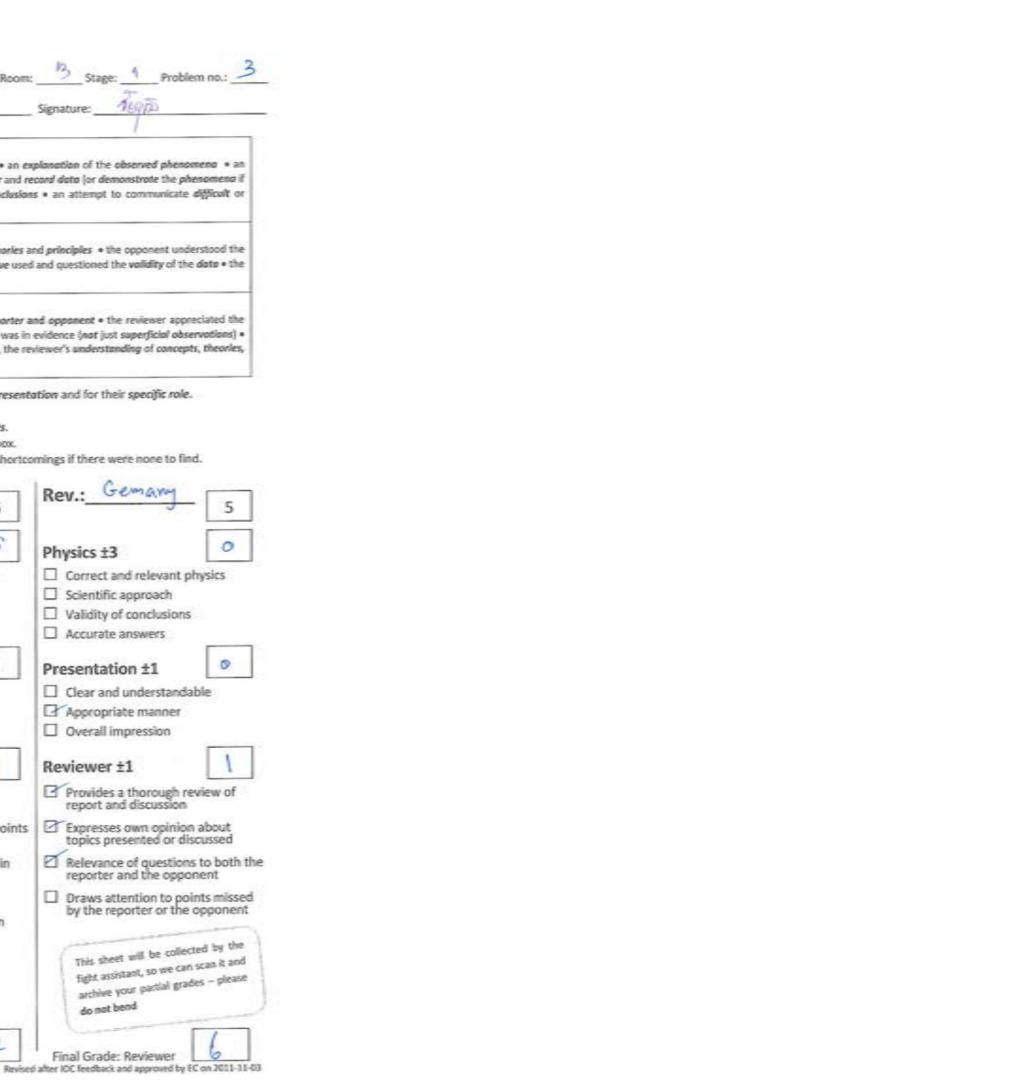
 the apparent challenged the reporter's understanding of the presented concepts, theories and principles * the apparent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted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



Scoring	(-IIII	O	lines
Jeorning	Julu	-	IIICS

Fight (Round no.): 4	Room:	:3 Stage:2 Problem no.:[-	+
auror: TRTyReVA	6.5	Signature: 1/35	

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.

	Hadreh Lox 5	Ann - Ketherin Erob 5	PHILA (RICEOTA 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	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 A A 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 fight assistant, so we can scan it and fight assistant, so we can erades – please
	☐ Novelty of the report		archive your partial 6
	☐ Contribution to the discussion		do not bend
	Final Grade: Reporter 3	Final Grade: Opponent	Final Grade: Reviewer 6 d after IOC feedback and approved by EC on 2011-11-03

Scoring Guidelin	Fight (Round no.): 4 Room	Signature: Problem no: 1
Scoring Galacini	Juron: Lokey Ster	Signature:
application of appropriate mothematics • rea	, theories and principles of the problem * an a sonable experimental technique to gother and perimental findings to draw suitable conclusion ble manner	record data (or demonstrate the phenomena if
An opposition should show that: * the opponent challenged the reporter's and appropriate mathematics presented * the oppoponent appreciated and highlighted the stre	lerstanding of the presented concepts, theories conent critiqued the experimental technique use ongths and weaknesses of the report	and principles * the opponent understood the data * the
important aspects (especially the controversion	ive summary of the performances the reporter of ones) • the reviewer's personal opinion was i -trivial and demonstrated, where possible, the re by the reporter and the opponent	n evidence (not just superficial abservations) •
 Select each partial grade from each sect 	dd to or deduct from the initial 5 points. ion and write it in the corresponding box. o questions were posed or not finding shorts Opp.: Ger La & 5	Rev.: (> ec l
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	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: Opponent

Room	3 Stage: 2 Problem no: 17 Signature:
r and rec	alonation of the observed phenomena * an condidata (or demonstrate the phenomena if it is an attempt to communicate difficult or
	d principles * the opponent understood the and questioned the solidity of the data * the
was in a	nd opponent * the reviewer appreciated the evidence (not just superficial observations) * lewer'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 Taker IOC feedback and approved by EC on 2011-11-03

Scoring Guideli	nes Juror: Chinan Y		- 1	Problem no.:_
A report should include: • a presentation of the appropriate conce application of appropriate mothematics • appropriate} • linking of theoretical and complex ideas in an effective and understo	reasonable experimental technique to experimental findings to draw suital	gother and record di	ata (or demonstrate t	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 concey opponent critiqued the experimental t	echnique used and qu		
A review should show that: • the reviewer succeeded in giving an objinportant aspects (especially the contrast such personal opinions were informative, a principles and appropriate mathematics or	ersial ones) • the reviewer's personal a non-trivial and demonstrated, where p	opiision was in eviden	ce (not just superficio	al abservations) •
 The grade for each of the three team The reporter, opponent and reviewe Consider the following suggestions to Select each partial grade from each of the point punish missing 'answers' when 	r each start with 5 points. o add to or deduct from the initial : section and write it in the correspor	5 points. nding box.		
Rep.:5	Opp.:	. 5 Re	Y:	5
Physics ±3 +1	Physics ±3	+(Ph	ysics ±3	+0)
Correct and relevant physics	Correct and relevant of	wsics F	Correct and relev	ant physics

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 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
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	_	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 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:		
	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 if 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 points.	
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 6
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of guestions to both the
□ Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
→ Novelty of the report		archive your parvar s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer 5 d after IOC feedback and approved by EC on 2011-11-03

ight (Round no.):	Room:	3	Stage:	2	Problem no.:	17
CHAINOOT		Signatu	re d	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	Rev.: Czech PAVLA 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 pof the report	points Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors the report	
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report		archive your parous si-
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 2011-11-0



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ght (Round no.);	4	_Room:	0	Stage	1	Problem no	= 1
mr. J. 600	Con	nBP	Sionati	ine:	2	Son	

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to 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.: 45TRANIA 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
El Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed
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 grades
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.:	0
wor Lake	19/	W	Signatur	ne:	UL	out	

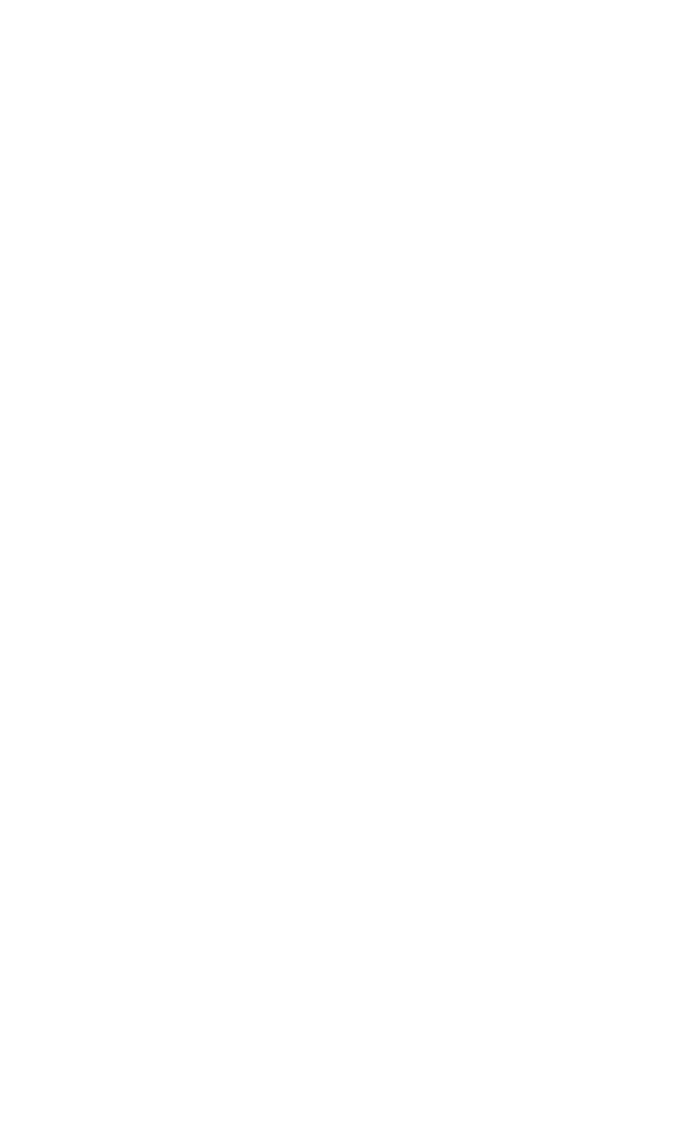
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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 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 parum s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer at the IOC feedback and approved by EC on 2011-11-0



Scoring	(-IIIIdo	linoc
Scoring	Juluc	IIIICS

Fight (Round no.):	4	Rooma	_3	_Stage:	3	Problem no.: _	6
Juror: TATYANJA	6	5	Signati	ure:	45	<u> </u>	

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:

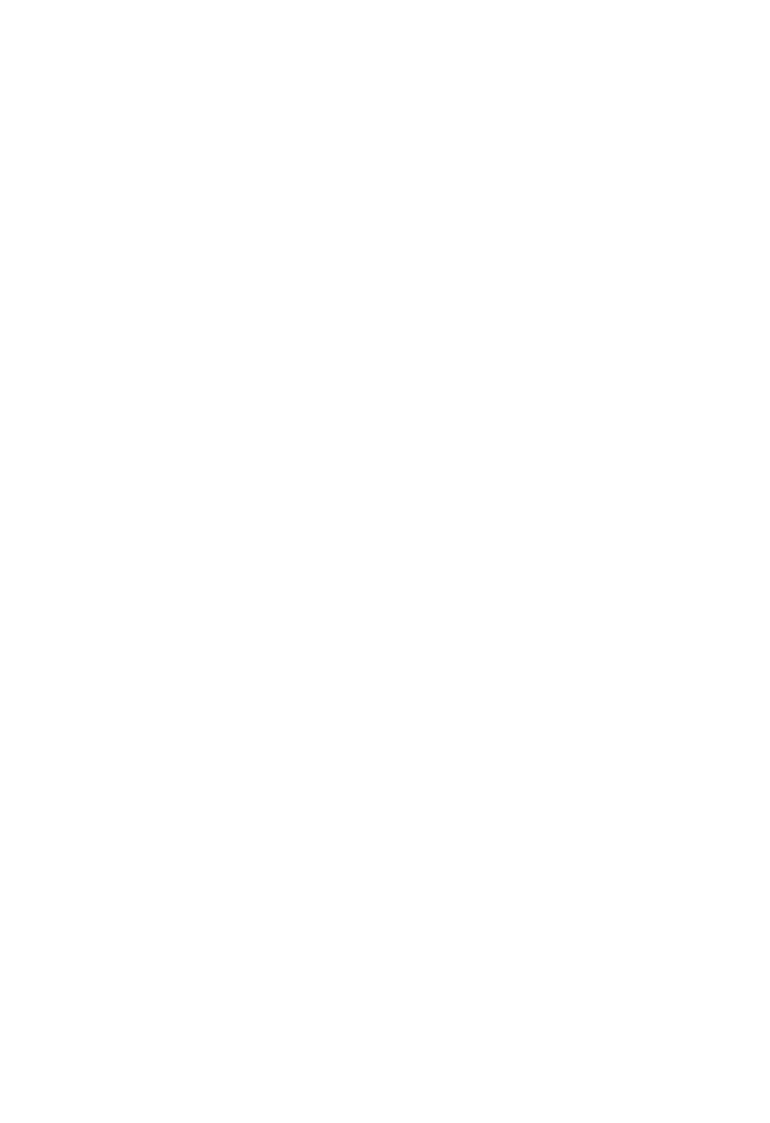
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted 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.: ANSTERLIA 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics +020	Physics ±3 +05 Correct and relevant physics +2.5
Scientific approach 40 24	☐ 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	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 Tory Li Signature:
application of appropriate mathematics • reasonab	ries and principles of the problem • an explanation of the observed phenomena • ile experimental technique to gother and record data (or demonstrate the phenomen ental findings to draw suitable conclusions • an attempt to communicate difficult anner
An opposition should show that: • the opponent challenged the reporter's understate appropriate mathematics presented • the opponent opponent appreciated and highlighted the strengths.	ndling of the presented concepts, theories and principles • the opponent understood t critiqued the experimental technique used and questioned the validity of the data • and weaknesses of the report.
Carried and a second of the se	
A review should show that: • the reviewer succeeded in giving an objective su important aspects (especially the controversial one	mmory of the performances the reporter and opponent • the reviewer appreciated s) • the reviewer's personal opinion was in evidence (not just superficial observation all and demonstrated, where possible, the reviewer's understanding of concepts, theor e reporter and the opponent

 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.: Gernang 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 +0	Opponent ±1	Reviewer ±1 ## -45
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 questions to both the
symbols	Finds shortcomings or errors in the report	reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
_ /		by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	4.
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
■ Novelty of the report		anchive your parcus so
☐ Contribution to the discussion		do not bend



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Fight (Round no.):	Roo	omc_5_	_Stage:	Problem no.: 6	
were Actorily	net:	Signah	me BD	2 .	
Section 14 Miles And		- September			_

* 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:	र्वा	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 seal a safes - 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 + 05
Clear and understandable	Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Q Overall 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
Novelty of the report	0	archive your parties a
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer (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 Stankeno	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-Kallinin Raab	Pavla Beresova	Sina Jolla Hastong	Petr Sosna	Grace Rohn			
Rejected Problems												
Accepted Problem	S Adition	cial Muscle		17	Collee Cup		6 Mag	ius Glide	ŀ			

Signature Fight Assistant: Janu Julimossi I

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

Rojrapa Tharamas

ight (Round no.): IV	Room:	4	Stage:	1	Problem no.:	
uno: OSTERLUIER	5	ienati	ne: 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.: Stan 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 tos	
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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7.	1.	1		7
Fight (Round no.):	Room:	Stage:	Problem no.:	_(
Alon Truck		0	00	
luror: Olga Luish	fud Signal	ture:	-	

• 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	Ell- 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 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 6	Final Grade: Opponent 6	Final Grade: Reviewer Staffer 100 feedback and approved by EC on 2011-11-03



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Scoring	Guid	elines
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Fight (Ro	ound no.):	4	Room: 4	Stage	1	Problem no.:	7
hime	Niret		Sign	nature:	97	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
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.: 10 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	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.:	(3
wood Felibar Ma	Welst Sien	sture 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.: Korn	5	Opp.: Jen	- 5	Rev.:	- 5	
Physics ±3	2	Physics ±3	+1,5	Physics ±3	+1,5	
Correct and relevant physic Scientific approach Validity of conclusions Accurate answers	cs	Correct and relevant Scientific approach Validity of conclusion Accurate answers		☐ Correct and relevant p ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers		
Presentation ±1	0	Presentation ±1	0	Presentation ±1	0	
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	12	☐ Clear and understan ☐ Appropriate manner ☐ Overall impression		☐ Clear and understanda ☐ Appropriate manner ☐ Overall impression	ible	
Reporter ±1	195	Opponent ±1	40,5	Reviewer ±1	+05	
Quality of experimental technique(s)		Response to the reporter's solution		 Provides a thorough review of report and discussion 		
☐ Structure		☐ Shows the strong and weak points of the report		Expresses own opinion about topics presented or discussed		
 Explanation of formulae ar symbols 	nd	☐ Finds shortcomines or errors in ☐ Relevance of qu		_		
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 citation ideas and input of others	ns of			This sheet will be collect fight assistant, so we can	ned by the scan it and	
☐ Novelty of the report	- 4			archive your partial or	jes P	
Contribution to the discuss	sion			do not bend		
Final Grade: Reporter	3	Final Grade: Opponent	2 Revise	Final Grade: Reviewer falter IOC feedback and approved by	7 EC on 2011-11-03	



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ight (Round no.):	Roomc	Stage:	Problem no.: _	
nor: Andres Ko	Blud on Sien	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.: Poloud	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	7	
Presentation ±1	Presentation ±1	0	Presentation ±1	0	
☐ Clear and understandable	☐ Clear and understandal	ble	Clear and understandab	le	
☐ 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 rev report and discussion	iew of	
☐ Structure	☐ Shows the strong and w	weak points	☐ Expresses own opinion	about	
Explanation of formulae and			topics presented or disc Relevance of guestions		
symbols	the report	EIT UIS III	reporter and the oppon		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questi	ions	☐ Draws attention to poin	ts 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 collecte fight assistant, so we can s		
☐ Novelty of the report			archive your partial glace	g - pacers	
☐ Contribution to the discussion			do not bend		
Final Grade: Reporter	Final Grade: Opponent	Smith	Final Grade: Reviewer Later IOC feedback and approved by EC	6	



Fight (Round no.):	4 Rox	om: V Sta	ge: _ / _ Prob	olem no.:
luror Ming	Feng	Signature: _	Ming	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.:lrau5	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		11166

ight (Round no.):	Room:	4	Stage:	2	Problem no.: 4	
uror: Osterwien		Sienatu	re: 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.: Vorea 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 0	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer finales IOC feedback and approved by EC on 2001-11-03



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Fight (Round no		Room:	Stage: <	Problem	1 1.0n a
luror: // QQ	luishe	VC Signat	ture: U	-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.: KOREA 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	⊕ Overall impression	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	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 light assistant, so we can scan it and mades - please
- Novelty of the report		archive your partur grant
- 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
Juron: Nirut		Signal	ture:	Tu	+	

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 +0,5	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 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 exacts - please
☐ Novelty of the report		archive your parties 6
☐ 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 K	Blon s	Sienat	ure:			

A report should include:

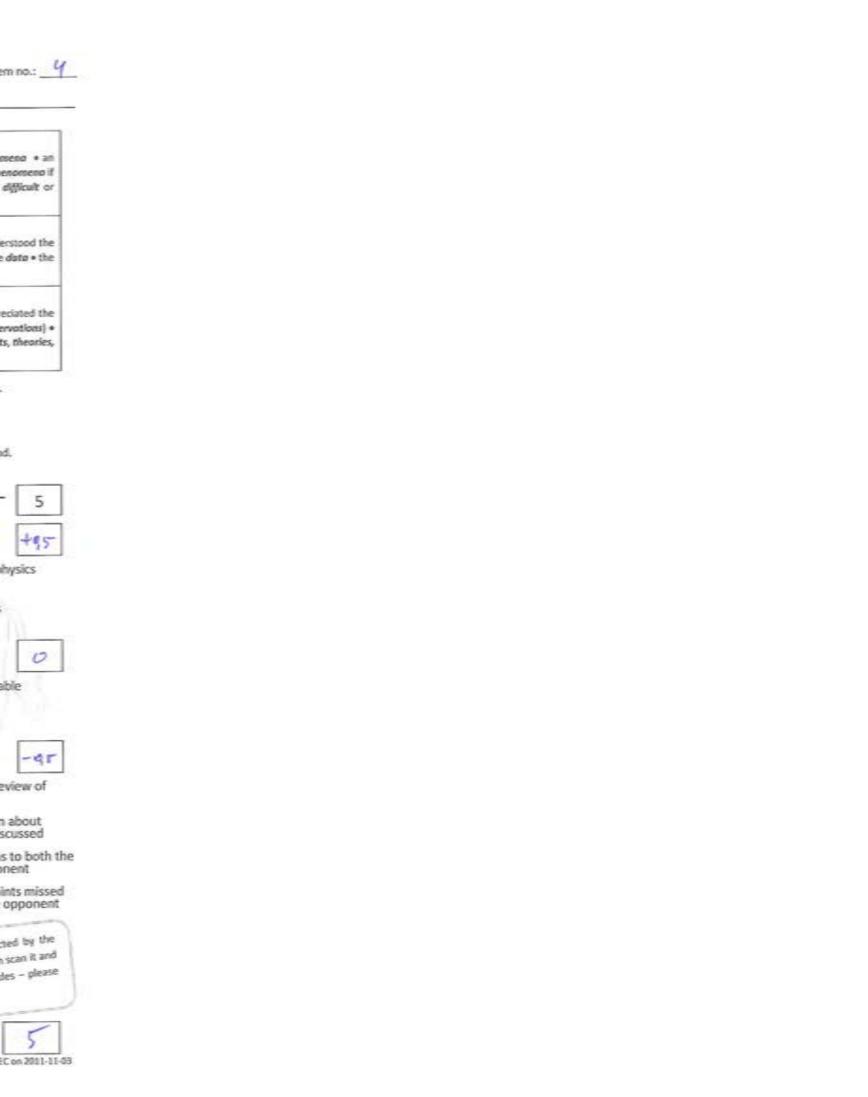
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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	SeBean 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 2011-11-01		



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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	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-j		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak 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		
☐ 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 6		



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

A report should include:

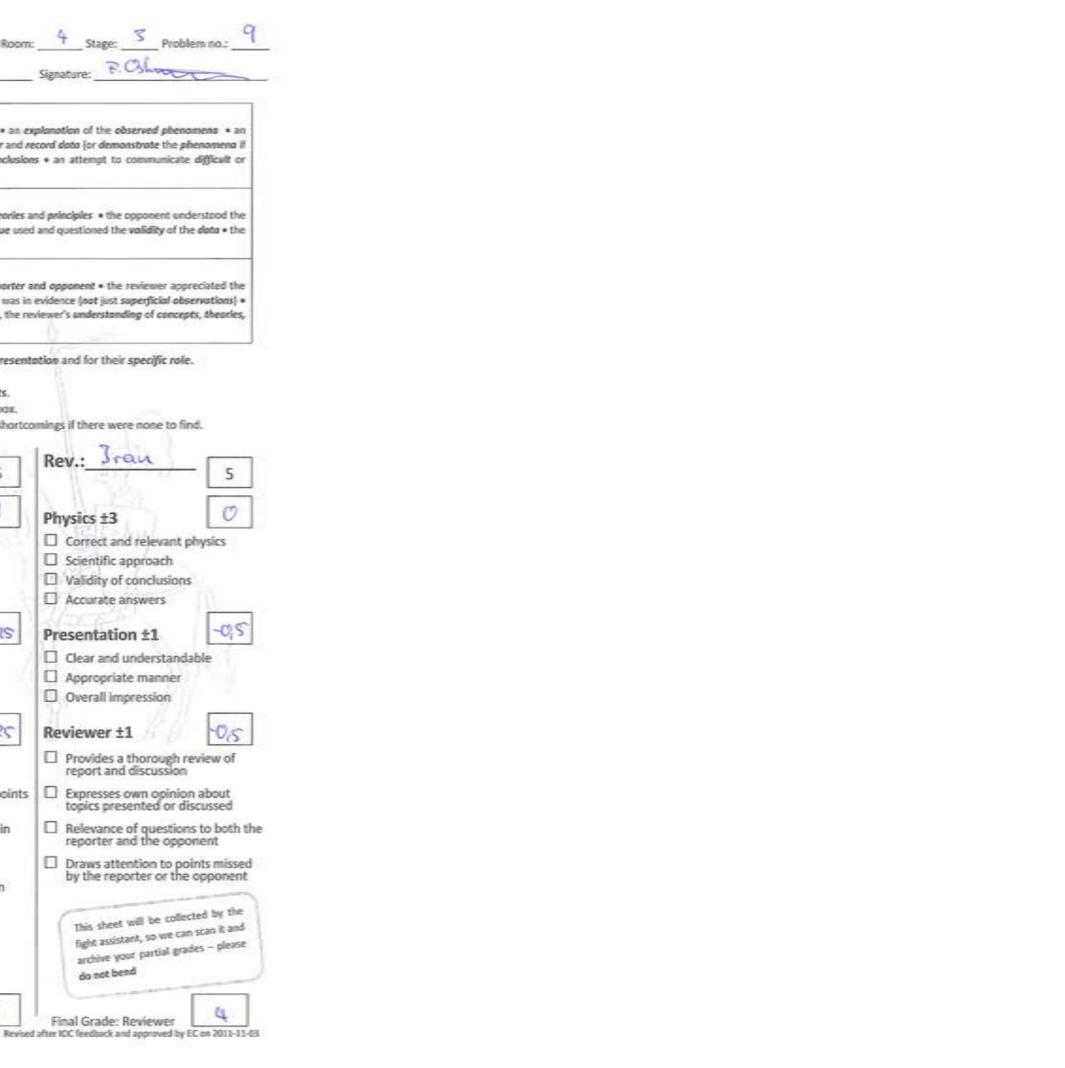
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data for demonstrate the phenomena if appropriate) . Inling of theoretical 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 questions to both t	
□ 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.: 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
☐ 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 / +0,5
⊕ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
□ Structure □	Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and 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	the report	Draws attention to points missed
of dimensions	Relevance of the questions	by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and mades - please
■ Novelty of the report		archive your parvar s
Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent Revised	Final Grade: Reviewer 6



Scoring Guideline	Sco	ring	Gui	del	ine
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Fight (A	ound no.]: _	4	Room: _	4	_Stage:	3	Problem no.: 9
Juror:	Nirut		s	ignat	ture:	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 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 	Finds shortcomings or errors in the report		
 Appropriate models, conformity of dimensions 	Relevance of the questions		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and 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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Fight (Round no.):	A Room	m: 4	_Stage: _3	Problem no.:	9
over Pollar					528

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.: Jan 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		archive 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 demonstrate 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:

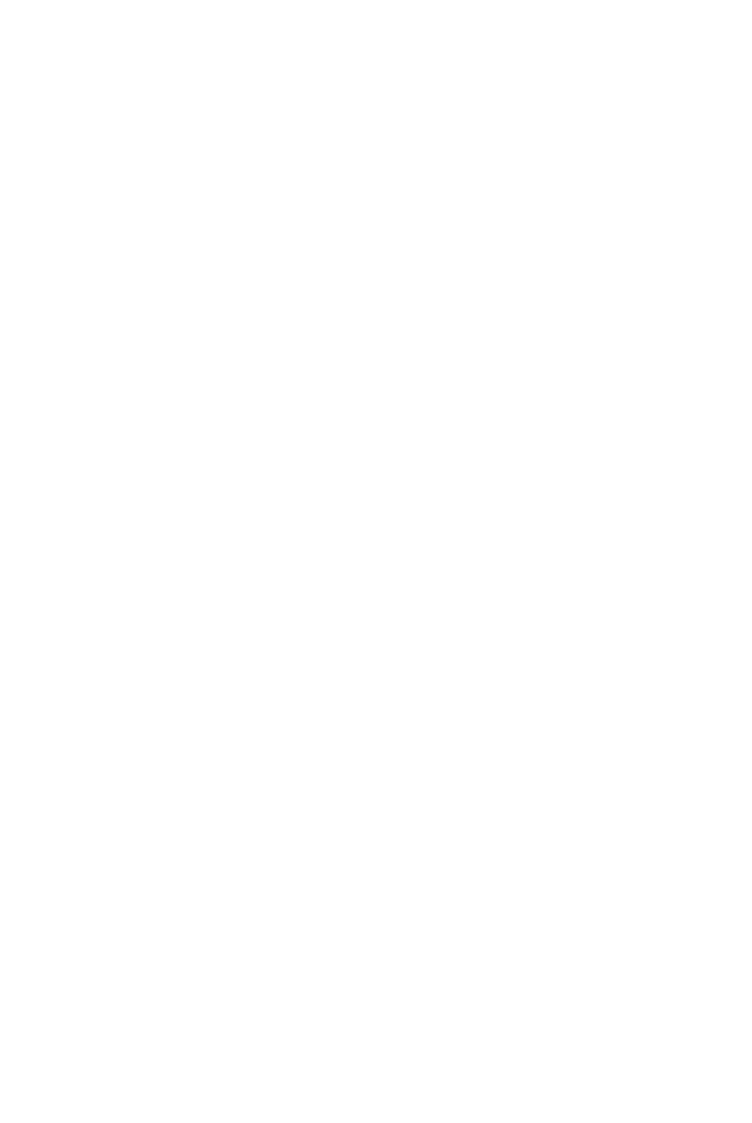
 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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.: 2901 5	
Physics ±3	Physics ±3 +as	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		anchive your partial grant	
☐ Contribution to the discussion	30-2-0-	do not bend	
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer	



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

1		Stage 1			Stage 2			Stage 3			Stage 4	
Team	Vor	1R	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	Ь	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. S.	, 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	ture:	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 questions to both th reporter and the opponent Draws attention to points missed	
Appropriate models, conformity of dimensions	the report Relevance of the questions		
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		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.:_ [J. K 5	
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 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 great	
☐ 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
mor LARS C		Sionah		Mu Col	

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	100	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	13	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers	Vi	
Presentation ±1	Presentation ±1	0	Presentation ±1	٥	
☐ Clear and understandable	☐ Clear and understandable	- 4	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	001	☐ Appropriate manner		
☐ Overall impression	☐ Overall impression		☐ Overall impression		
Reporter ±10.7	Opponent ±1	-,	Reviewer ±1	0.5	
Quality of experimental technique(s)	Response to the reporter's solution	3 6	Provides a thorough revi report and discussion	iew of	
☐ Structure	Shows the strong and weak of the report	points	☐ Expresses own opinion a	bout	
☐ Explanation of formulae and			topics presented or discussed		
symbols	Finds shortcomings or errors the report	sin	Relevance of questions t reporter and the oppone		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	á II	☐ 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 fight assistant, so we can so		
☐ Novelty of the report			archive your partial grade.	- please	
☐ Contribution to the discussion			do not bend		
Final Grade: Reporter	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	☐ 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 parcer or	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 7	Final Grade: Opponent 4	Final Grade: Reviewer 6 sher IOC feedback and approved by EC on 2001-11-03	



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Fight (Round no.):	4	Room:	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 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
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- 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 questions to both t		
☐ 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	119.00	om: 5 Stage: 2 Problem no.: 1
application of appropriate mathematics	repts, theories and principles of the problem + as • reasonable experimental technique to gother and di experimental findings to draw suitable conclu- andoble manner	d record data (or demonstrate the phenomena if
oppropriate mathematics presented • the	st: s understanding of the presented concepts, theori e opponent critiqued the experimental technique of e strengths and weaknesses of the report	
important aspects (especially the control	bjective summary of the performances the report versiof ones) • the reviewer's personol opinion wa , non-trivial and demonstrated, where possible, th used by the reporter and the opponent	in evidence (not just superficial abservations) *
Select each partial grade from each	to odd to or deduct from the initial 5 points. section and write it in the corresponding box on no questions were posed or not finding sho	
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 Presentation ±1	Presentation ±1	Accurate answers 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 poin	ts D 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 treporter 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

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Fight (Round no.): 4 Room:	Stage: Z Problem no. 16	
Juror: + 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	
rstanding of the presented concepts, theories are ment critiqued the experimental technique used giths 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 had 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.	The second secon	
questions were posed or not finding shortco	mangs 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	
L. Accurace answers	1/282	
Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable ☐ Appropriate manner	
☐ Appropriate manner ☐ Overall impression	Overall impression	
	N // // //	
Opponent ±1 Response to the reporter's	Reviewer ±1 Provides a thorough review of	
solution	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 by the reporter or the opponent	
☐ Contribution to the discussion		
	This sheet will be collected by the	
	This sheet will be collected of the coll	
	do not bend	
		
Final Grade: Opponent	Final Grade: Reviewer	
Revised	after IOC feedback and approved by EC on 2011-11-03	

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Fight (Round no.):	4	Room:)	Stage:	L	Problem no.:	0
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A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * 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) *
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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.: 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 0-1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed		
 Slides, on-site experiments, audio, video, as appropriate 	Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and 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

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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

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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 a topics presented or disci			
 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, 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 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		



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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
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 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
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- · 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 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 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 Gui	idei	line:	S
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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 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 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,
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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.: 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	1
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 reporter's solution		Provides a thorough review of report and discussion	
☐ 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 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 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.): _	W. 800	5	Stage:	Problem n	0:16
TANOŜOVA				a.	

A report should include:

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

An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
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.:	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	MV/Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	Appropriate manner	Appropriate manner	
☐ Overall impression	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 helpings	of the report Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent	
☐ Appropriate models, conformity of dimensions Act Minds &	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 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	is, theories and principles of the problem * an ex asonable experimental technique to gother and re sperimental findings to draw suitable conclusion table manner	cord data (or demonstrate the phenome
An opposition should show that: • the opponent challenged the reporter's un appropriate mathematics presented • the opponent appreciated and highlighted the st	derstanding of the presented concepts, theories a oponent 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 summary of the performances the reporter a sial 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 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.: () 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 fight assistant, so we can scan it
ideas and input of others		and wrades = 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:

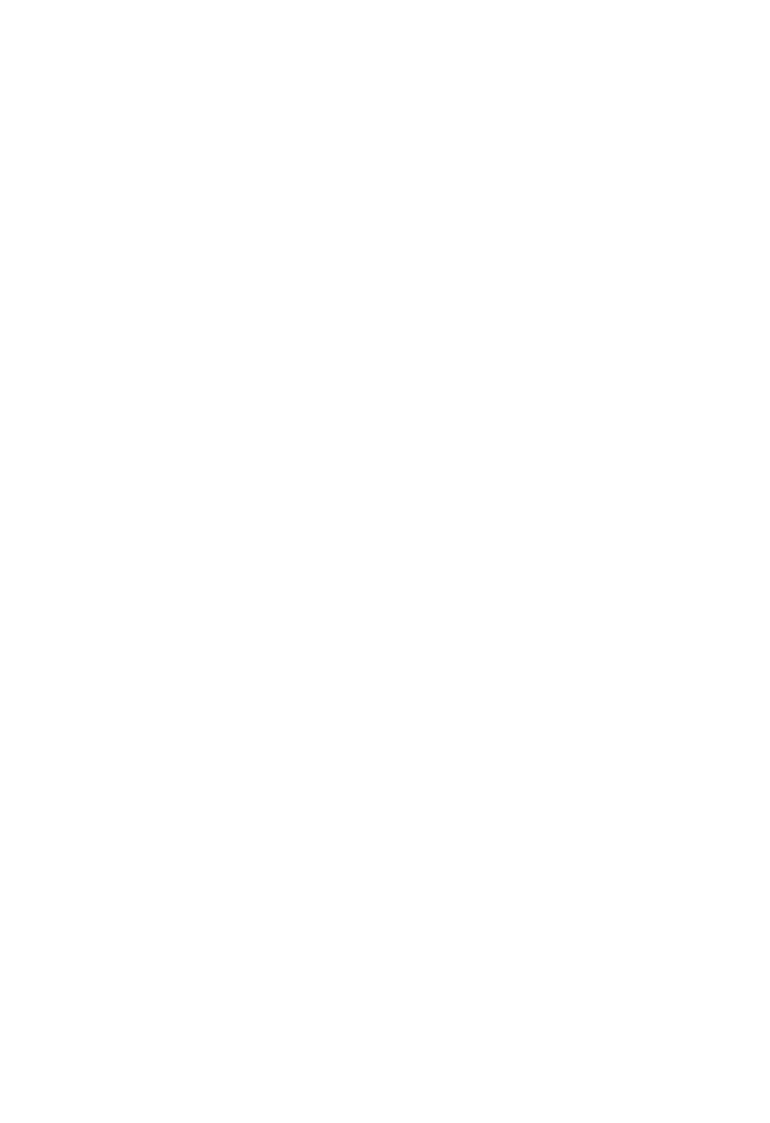
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) * linking of theoretical 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.):	4 800	m: 5	Stage:	3 Problem	no: 9
ight (Round no.): _	Grafin	Sienat	urec	a.Co.	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
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the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
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the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the
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such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
principles and appropriate mathematics used by the reporter and the opponent

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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.: 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 ar-	
☐ 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	



Scoring	Guide	elines
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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:

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appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
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 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 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 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:

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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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- . 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.
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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.:	Opp.: Pulsia	5	Rev.: Kerya 5
Physics ±3	Physics ±3	0	Physics ±3
☐ Correct and relevant physics	Correct and relevant phys	ics	☐ 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	6	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	s	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and wear of the report	ak points	Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and symbols	Finds shortcomings or em	nrs in	Relevance of questions to both the
	the report	U1 2 101	reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the question	is .	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discus	sion	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 made a please
☐ Novelty of the report			archive your partial glades
☐ Contribution to the discussion			do not bend
Final Grade: Reporter	Final Grade: Opponent	5	Final Grade: Reviewer Jaher 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:		au.	

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	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 see please
☐ Novelty of the report		archine your parties or
Contribution to the discussion	g	do not bend
Final Grade: Reporter	Final Grade: Opponent 5	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	~				nich len oving br		_					
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	Di Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1 -q<	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	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 parses or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	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 0	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 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 +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	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 so
☐ Contribution to the discussion		do not bend



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Fight (R	tound no.):	4	Room: _	6	_Stage	1	Problem no	ı:
luror	M.H.	Vwon	5	lenatu	ire:	m	m3/	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.: Napowrt 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 of the report	Expresses own opinion about topics presented or discussed	
Explanation of formulae and symbols	Finds shortcomings or errors in	Relevance of questions to both the	
	the report	reporter and the opponent	
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your parties grant	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer 6 d after IOC feedback and approved by EC on 2011-11-03	



Scoring Guidelin	1es Suror: YE YEO	m: 6 Stage: Popblem no.: 17 Signature: 4
application of appropriate mothematics • re	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 loss • an attempt to communicate difficult or
An opposition should show that: • the opponent challenged the reporter's us oppropriate mathematics presented • the o 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 superficiol observations) • neviewer'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 short Swidey Opp.: May's 1	
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	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 demonstrate 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 Infi	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 an Consider the following sug. Select each partial grade in Don't punish missing 'answ	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.
Rep.://w/f	5	Opp.: Mayel 5	Rev.: Jack Trafidge 5
Physics ±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 understandal 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 th
Appropriate models, co of dimensions	nformity	the report Relevance of the questions	reporter and the opponent 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 readers - please
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	ndable	☐ Clear and understanda	able
☐ 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 re 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	✓ Finds shortcomings or errors in the report		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	jes – pieas
☐ Contribution to the discussion			do not bend	por min miles of
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 understandal	ble	☐ Clear and understandab	de
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner	
Overall impression	Overall impression		☐ Overall impression	
Reporter ±1	Opponent ±1	-45	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 topics presented or disc	about
 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 collection fight assistant, so we can see the collection of the c	ed by the scan it and
Novelty of the report			archive your parcial a	5 - please
☐ Contribution to the discussion			do not bend	
Final Grade: Reporter	Final Grade: Opponent	4	Final Grade: Reviewer Safter IOC feedback and approved by EC	5 00 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	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physic	s 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	O Presentation ±1
Clear and understandable	☑ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 0	Opponent ±1	Reviewer ±1
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 topics presented or discussed
☐ Explanation of formulae and	of the report	
symbols	Finds shortcomings or error 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 discuss	
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 great
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer 5 Revised after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelines A report should include: a presentation of the appropriate concepts, theories and principles of the problem an explanation of the observed phenomena 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.

	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 as Select each partial grade from each sect Don't punish missing 'answers' when no	dd to or deduct from the initial 5 points.	713
Rep.: Hexader 5	Opp.: Jack	Rev.: North phat 5
Physics ±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 we can scan it and
Novelty of the report		arthive your parties or
Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-0:

	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 ex- onable experimental technique to gother and re- erimental findings to draw suitable conclusion- ble manner	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's undeppropriate mathematics presented • the oppoponent appreciated and highlighted the street	erstanding of the presented concepts, theories as onent critiqued the experimental technique used agtils 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 a diones) • 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	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

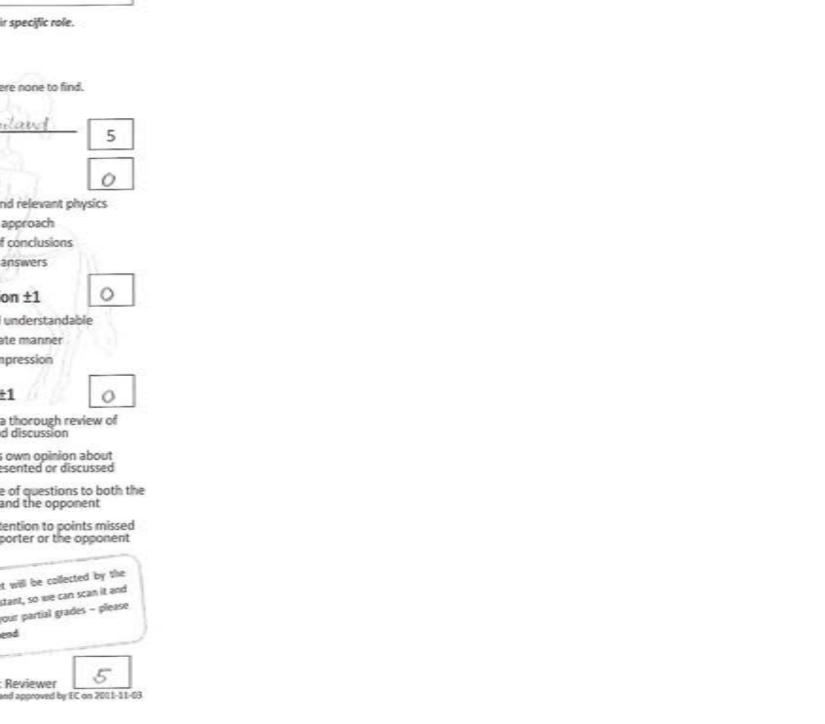
1 7 6
Room: 6 Stage: Problem no.: ()
Signature:
• an explanation of the observed phenomena • an
and record data (or demonstrate the phenomena if clusions + an attempt to communicate difficult or
ories and principles • the opponent understood the
we used and questioned the validity of the data + the
orter and opponent • the reviewer appreciated the
was in evidence (not just, superficial abservations) * the reviewer's understanding of concepts, theories,
D
resentation and for their specific role.
s.
cox. thortcomings if there were none to find.
That and
Rev.:
Physics ±3
☐ Correct and relevant physics
☐ Scientific approach ☐ Validity of conclusions
Accurate answers
Presentation ±1
Presentation ±1
Appropriate manner
□ Overall impression
Reviewer ±1 +/
Provides a thorough review of report and discussion
oints Expresses own opinion about topics presented or discussed
in Relevance of questions to both the reporter and the opponent
☐ Draws attention to points missed
by the reporter or the opponent
This sheet will be collected by the
This sheet will be collected by fight assistant, so we can stan it and archive your partial grades – please
do not bend
Final Grade: Reviewer 6
Revised after IOC feedback and approved by EC on 2011-11-03

Scoring Guidelines	Fight (Round no.): 4 Room: 6 Stage: 2 Problem no.: Surror: 5-By land Signature: 1345
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
A review should show that:	

	the state of the s
٠	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.

Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner Overall impression Opponent ±1 Response to the reporter's	Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner Overall impression Reviewer ±1 O
☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Opponent ±1 ↓ //	Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner Overall impression Reviewer ±1 O
☐ Validity of conclusions ☐ Accurate answers Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Opponent ±1 ↓ //	☐ Validity of conclusions ☐ Accurate answers Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Reviewer ±1 ☐ ○
☐ Accurate answers Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Opponent ±1 ↓ //	Presentation ±1 Clear and understandable Appropriate manner Overall impression Reviewer ±1
Presentation ±1 Clear and understandable Appropriate manner Overall impression Opponent ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression Reviewer ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression ☐ Opponent ±1 ☐ ↓//	Clear and understandable Appropriate manner Overall impression Reviewer ±1
☐ Appropriate manner ☐ Overall impression Opponent ±1 ↓//	Appropriate manner Overall impression Reviewer ±1
Opponent ±1	Overall impression Reviewer ±1
Opponent ±1	Reviewer ±1
Response to the reporter's	
solution	Provides a thorough review of report and discussion
Shows the strong and weak po of the report	ints Expresses own opinion about topics presented or discussed
☑ Finds shortcomings or errors in	n Relevance of guestions to both the
V	reporter and the opponent Draws attention to points missed
dio, 🛮 Contribution to the discussion	by the reporter or the opponent
	This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and grades - please
	archive your parties of
	do not bend
	the report Relevance of the questions Contribution to the discussion



ight (Round no.): _	4 Rooms	6 Stage:	3 Probjem no.:	9
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	
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, as we cades – please	
☐ Novelty of the report		archive your parcial s	
Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2001-31-03	



Fight (Round no.):	4	Rooms	6_Str	ge: 3	Problem r	10: 12
uror: Jalian 1						

A report should include:

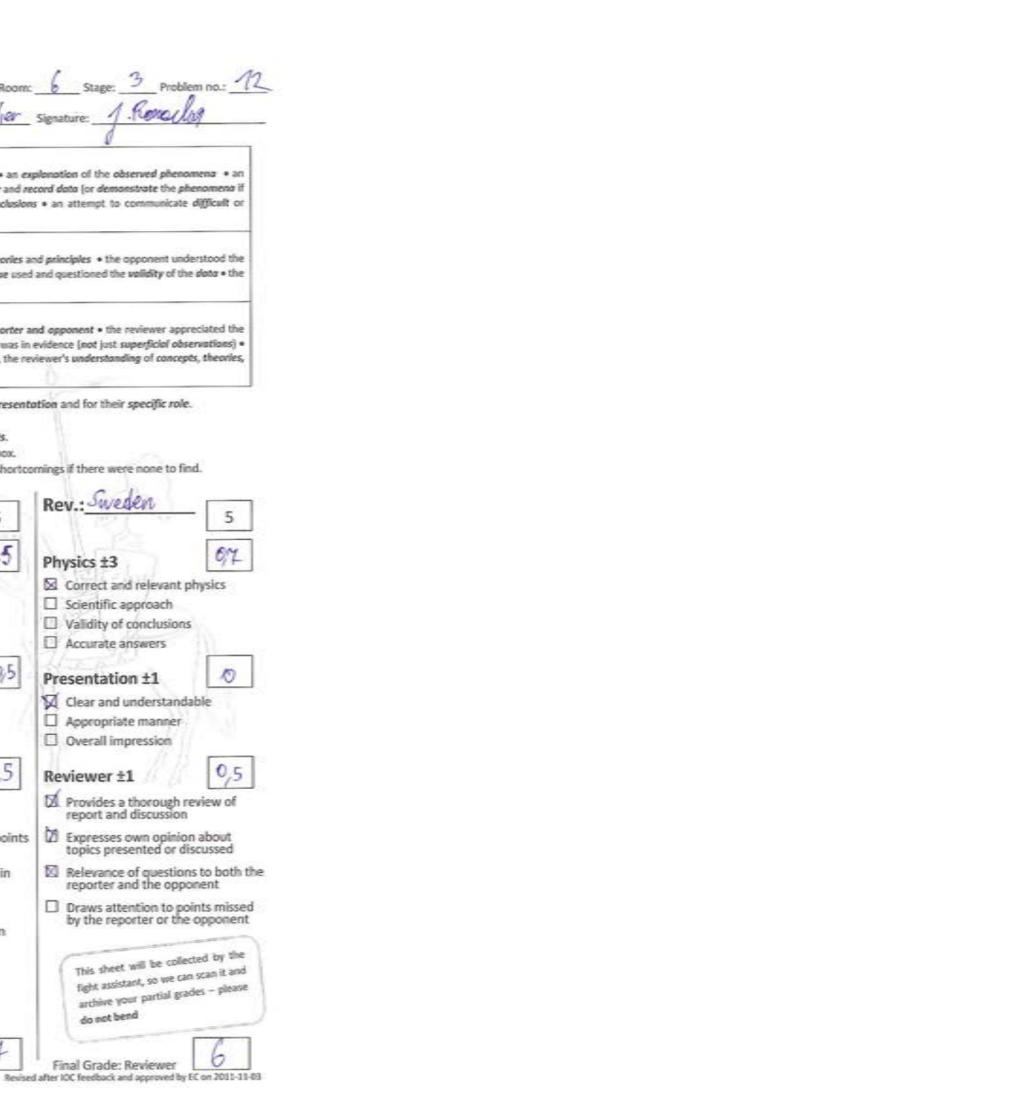
· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical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

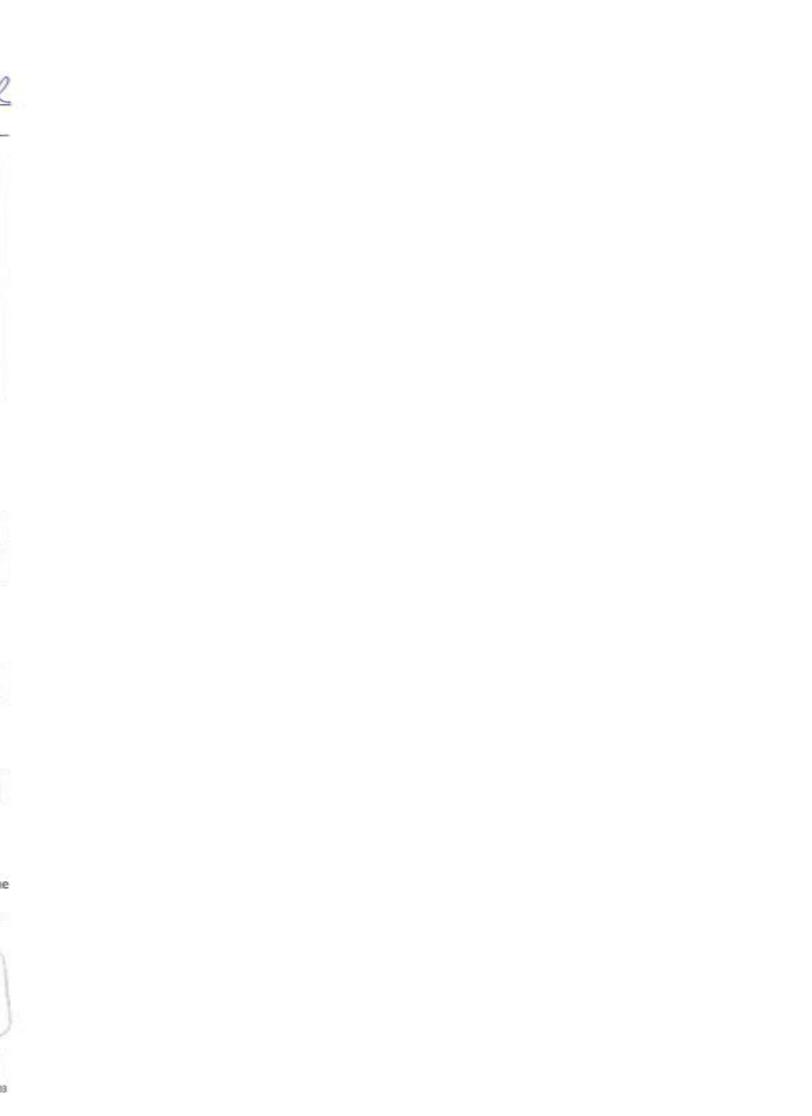
• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 0	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	Pight (Round no.): N Room Nes Juror: Akylild jill	: 6 Stage: 3 Projetoff no.: 1	
application of appropriate mothematics • re-	s, theories and principles of the problem * an e asonable experimental technique to gother and r perimental findings to draw suitable conclusio lable manner	ecord data (or demonstrate the phenomena if	
An opposition should show that: the opponent challenged the reporter's unappropriate mathematics presented + the opponent appreciated and highlighted the str	derstanding of the presented concepts, theories ponent critiqued the experimental technique use engths and weaknesses of the report	and principles • the opponent understood the d and questioned the validity of the data • the	
important aspects (especially the controvers	tive summary of the performances the reporter ial ones] • the reviewer's personal opinion was in n-trivial and demonstrated, where possible, the no i by the reporter and the opponent.	evidence (not just superficial abservations) •	
The reporter, opponent and reviewer of Consider the following suggestions to of Select each partial grade from each sec	consists of a partial grade for physics, present each start with 5 points. add to or deduct from the initial 5 points. ction and write it in the corresponding box. to questions were posed or not finding shorts		
Rep.:	Opp.:5	Rev.:	
hysics ±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	
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	
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent 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		fight assistant, so we can be archive your partial grades - please do not bend	



Sco	rina	Guid	elines
JLU	rilly	Guiu	cillies

ight (Round no.):	4	Room	6	_ Stage	3	Problem	no.: _[2
mor: MiH.	Kw	on				ynn		

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.: Tegs 5	Opp.: Piam 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 (after IDC feedback and approved by EC on 20 1-11-03



Scoring Guideli	ines Juror: 1/4 1/4 Noom:	Signature: Problem no.: 12
application of appropriate mathematics	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	cord data (or demonstrate the phenomena if
	understanding of the presented concepts, theories a copponent critiqued the experimental technique used	
important aspects (especially the control	estive 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 stort with 5 points. to odd 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 company of the c	
Oburies ±2	Physics ±3	Physics ±3
Physics ±3		☐ 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 conces	its, theories an	d principles • the opponent understood th
appropriate mathematics presented + the app			
opponent appreciated and highlighted the stree	ngths and weaknesses of the repor		
A review should show that:			
 the reviewer succeeded in giving an objects 	ve summary of the performances t	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	voriety of a martial grade for play	circ nescents	tion and for their specific role
 The reporter, opponent and reviewer ea 		aco, presente	and the specific trees
 Consider the following suggestions to as 		points.	
 Select each partial grade from each sect 			Harris Charles
 Don't punish missing 'answers' when no 	- 1	ding shortco	mings if there were none to find.
New Zealand	They and		The state of the s
Rep.: /err	Opp.: //the	5	Rev.: /var 5
		DEFA	V 11 78/2
Dhusies +3	Physics ±3	0	Physics ±3
Physics ±3	E/ W21	10.727	
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 understandab	le	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner
Overall impression	Overall impression		☐ Overall impression
			11 // // F.
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	eak points	☐ Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed Relevance of questions to both	
symbols	☐ Finds shortcomings or e the report	nrors in	reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questi	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, so we can scan it an fight assistant.
☐ Novelty of the report			archive your parson p
☐ Contribution to the discussion			do not bend
	1	/	

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

A report should include:

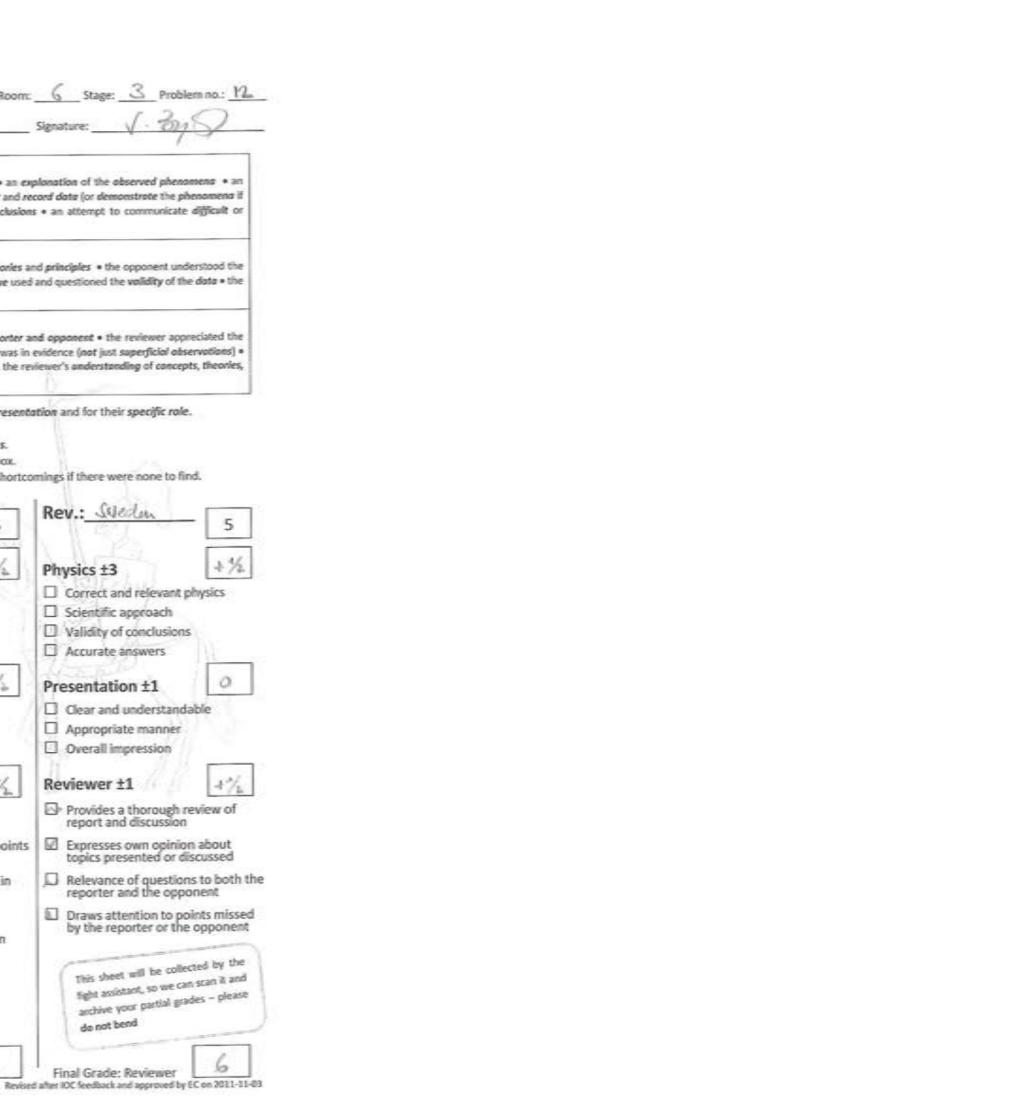
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) • linking of theoretical 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 Earland 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	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 scan it and fight assistant, so we can scan it and
Novelty of the report		archive your parus a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 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.: Sovalie 5	Rev.: China 5
Physics ±3 2,3	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		Signatu	re:	Plo Mall	

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 Shows the strong and weak points	Expresses own opinion about
Structure	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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of and demonstrated, where possible, the rev e reporter and the opponent.	iewer's understanding of concepts, theories,	
ts of a partial grade for physics, presento	tion and for their specific role.	
tort with 5 points. o or deduct from the initial 5 points.		
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	
*55 L3		
1701	Physica 42	
nysics ±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	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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Contribution to the discussion		
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Fight (Round no.): _	IV Roo	m: + s	tage:	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 40.6	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 // + a.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 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 are
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6 after IOC feedback and approved by EC on 2011-11-03

A report should include:

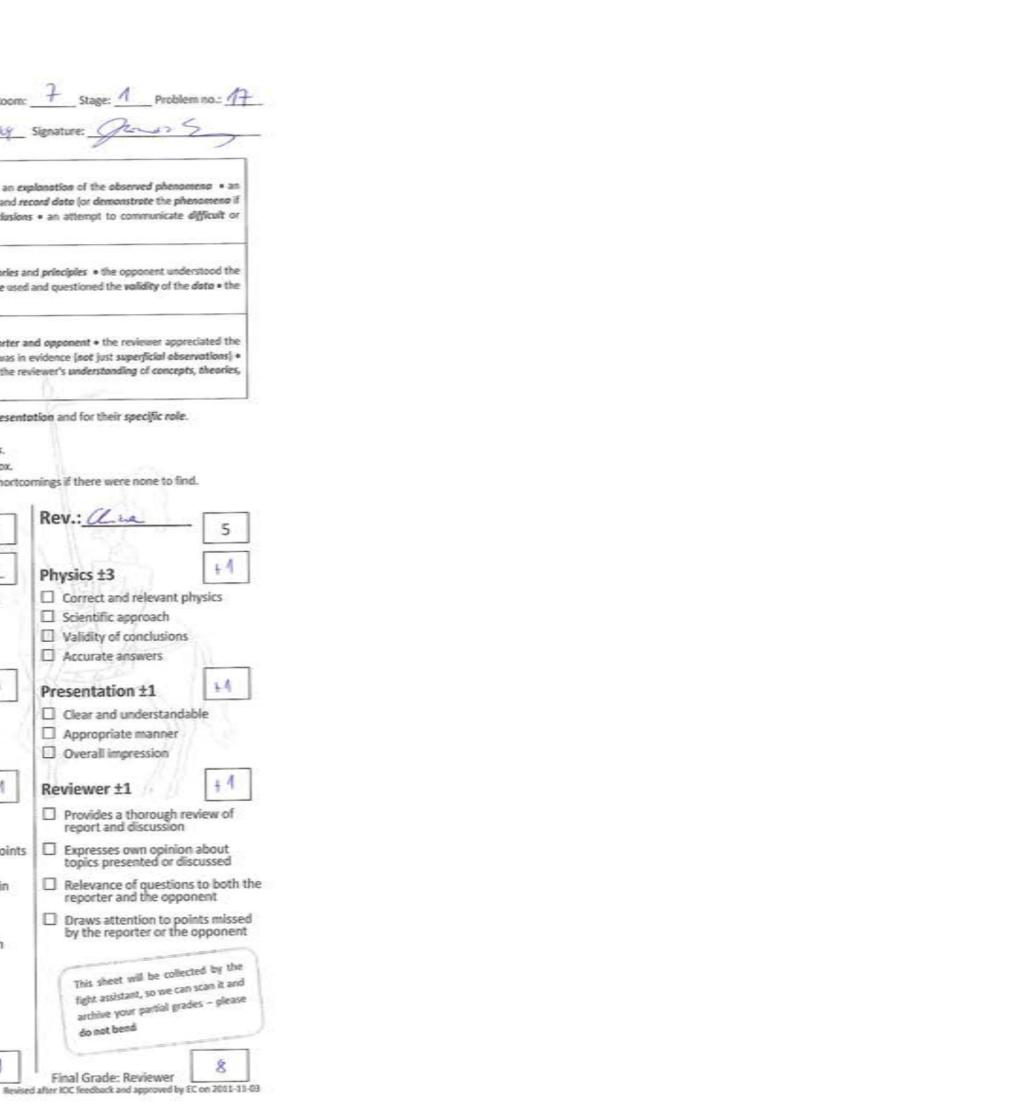
· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical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

An opposition should show that:

 the apponent challenged the reporter's understanding of the presented concepts, theories and principles
 the apponent understood the appropriate mathematics presented * the apponent critiqued the experimental technique used and questioned the validity of the data * the 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 + 4
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio video, as appropriate	, Contribution to the discussion	by the reporter or the opponent
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Contribution to the discussion		do not bend
Final Grade: Reporter	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				
A review should show that:								
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Important aspects (especially the controve such personal opinions were informative, principles and appropriate mathematics u	non-trivial and	d demonstrati	ed, where	possible, th				
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☐ Validity of conclusions	☐ Acc	curate ansv	wers	no eleme	0 0	Accurate	e answers	D. part
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□ Appropriate manner □ Overall impression	3_2	erall impre			10.22		impression	11.
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Reporter ±1 -0-5	Oppo	nent ±1		-0.5	Rev	iewer	±1 (0)	10-11
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
 Appropriate models, conformity of dimensions 	E	levance of	the que	stions	/ 0	Draws a	ttention to po	oints misse
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☐ Contribution to the discussion	5-17	There	Sep 3	C		do not	bend	
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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.
Ot A	(1.	D.
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:

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 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) •
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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	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 6.5	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 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.): 4 Room:	+ Stage: 2 Problem no.:
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A report should include:

a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an
application of appropriate mathematics * reasonable experimental technique to gather and record data (or demanstrate the phenomena if
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appropriate mathematics presented . the opponent critiqued the experimental technique used and questioned the validity of the data . the
opponent appreciated and highlighted the strengths and weaknesses of the report.

- 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	- COE-10	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer of after IDC feedback and approved by EC on 2011-11-0:



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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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- 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.: 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						

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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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

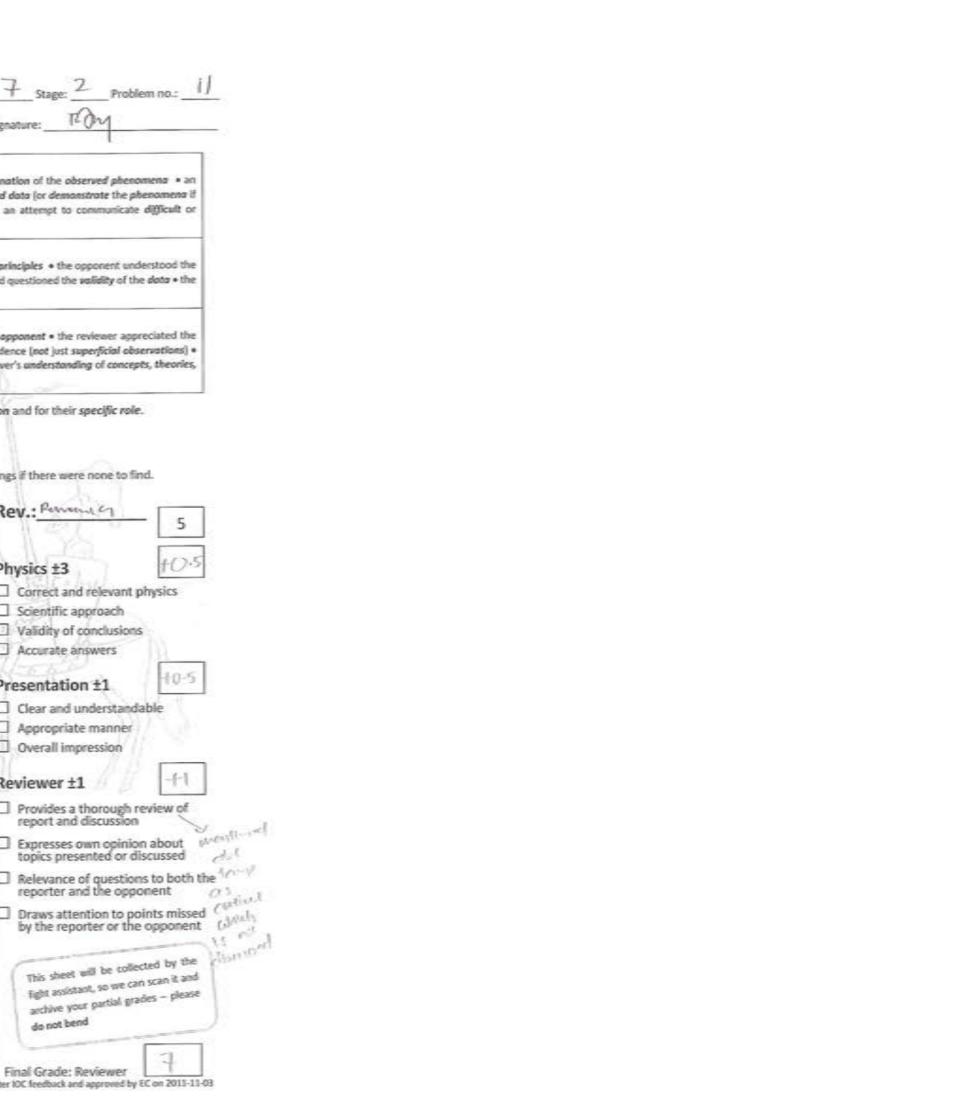
- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
 important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
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- 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.: SCOVANA 5	Opp.: CHUH 5	Rev.: Korwy 5
Physics ±3	Physics ±3	Physics ±3 +0,C
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 + 1	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
☐ Novelty of the report		anchive your parties or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-0



Scoring Guidelines	Fight (Round no.): 4 Room: 7 Stage: 2 Problem no.: Juror: Tow Joy Signature: 170M
application of appropriate mathematics • reasonable	es and principles of the problem • an explanation of the observed phenomena • experimental technique to gother and record data (or demanstrate the phenomena tal findings to draw suitable conclusions • an attempt to communicate difficult
	fing 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 weeknesses of the report
	the second second second second
A review should show that:	
A review should show that: • the reviewer succeeded in giving an objective sum important aspects (especially the controversial ones)	mary of the performances the reporter and opponent • the reviewer appreciated to • the reviewer's personal opinion was in evidence (not just superficial observations and demonstrated, where possible, the reviewer's understanding of concepts, theore
A review should show that: • the reviewer succeeded in giving an objective sum important aspects (especially the controversial ones) such personal opinions were informative, non-trivial a principles and appropriate mathematics used by the respective control of the control of	many of the performances the reporter and opponent • 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, theorem
A review should show that: 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 reference of the three teams consists. The reporter, apponent and reviewer each start	mary 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, theoreporter and the apponent of a partial grade for physics, presentation and for their specific role. In with 5 points.
A review should show that: 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 reporter, apponent and reviewer each star consider the following suggestions to add to a	many of the performances the reporter and apponent • 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 apponent of a partial grade for physics, presentation and for their specific role. It with 5 points. Or deduct from the initial 5 points.
A review should show that: 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 relation 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 apinion was in evidence (not just superficial observation and demonstrated, where possible, the reviewer's understanding of concepts, theoreporter and the apponent of a partial grade for physics, presentation and for their specific role. It with 5 points. Or deduct from the initial 5 points.
A review should show that: 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 non-trivial in the grade for each of the three teams consists. The reporter, apponent and reviewer each state. Consider the following suggestions to add to a 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 in the reviewer's personal opinion was in evidence (not just superficial observations and demonstrated, where possible, the reviewer's understanding of concepts, theoriesporter and the apponent of a partial grade for physics, presentation and for their specific role. In with 5 points. For deduct from the initial 5 points. It with in the corresponding box.

Rep.: Styatin 5	Opp.:_(\langle \pi \)	Rev.: Person 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 it and
□ Novelty of the report	The state of the s	archive your parus: p
☐ Contribution to the discussion	been physical apparents.	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:

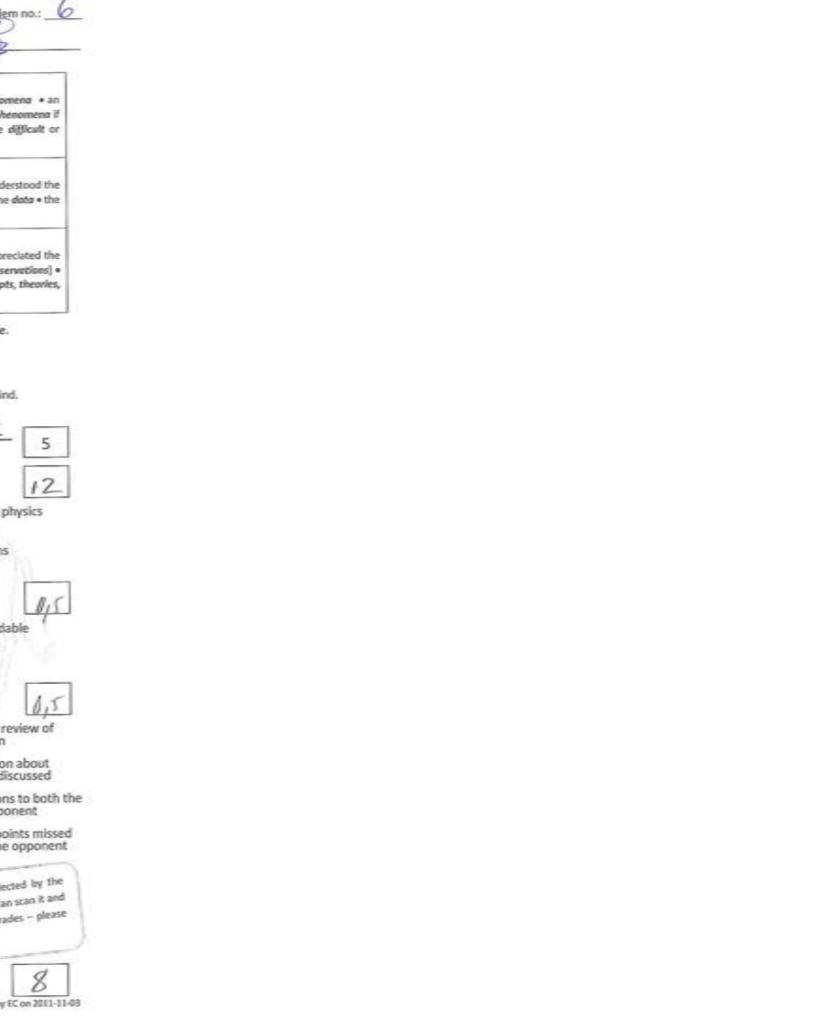
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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 // 0,5
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parour s
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 8



Scoring Guidelin	Fight (Round no.): _A		7 Stage: 3 Problem Signature: 40 M vill	no:_6_
A report should include: • a presentation of the appropriate concepts, application of appropriate mothematics • reas appropriate) • linking of theoretical and exp complex ideas in an effective and understandary.	onable experimental technique to g erimental findings to draw suitable	oother and re	cord data (or demonstrate the pheno	insess if
An opposition should show that: • the opponent challenged the reporter's and oppropriate mathematics presented • the oppopenent appreciated and highlighted the stre	onent critiqued the experimental te	chinique used	nd principles • the opponent underst and questioned the validity of the do	nod the ita • the
A review should show that: • the reviewer succeeded in giving an objecti important espects (especially the controversic such personal opinions were informative, non-principles and appropriate mathematics used	I ones) • the reviewer's personal op trivial and demonstrated, where po	sinion was in	evidence (not just superficial observe	e (choise
The grade for each of the three teams or The reporter, opponent and reviewer ex Consider the following suggestions to a Select each partial grade from each sect Don't punish missing 'answers' when no	ch stort with 5 points. dd to or deduct from the initial 5 on and write it in the correspond	points. ding box.		
Rep.:5	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	ysics	Physics ±3 Correct and relevant phy Scientific approach Validity of conclusions Accurate answers	sics
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Reporter ±1	Presentation ±1 Clear and understandab Appropriate manner Overall impression Opponent ±1	le 1	Presentation ±1 Clear and understandable Appropriate manner Overall impression Reviewer ±1	e 1
Quality of experimental technique(s)	Response to the reporte solution	er's	Provides a thorough revi report and discussion	iew of
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	Shows the strong and wo of the report Finds shortcomings or e the report Relevance of the question	rrors in	This sheet will be collecte	to both the ent ts missed oponent d by the
Novelty of the report Contribution to the discussion			tight assistant, so we can a archive your partial grades do not bend	- please
Final Grade: Reporter	Final Grade: Opponent	7 Revise	Final Grade: Reviewer ed after IOC feedback and approved by EC	8 on 2011-11-0

	71 -		/	
Fight (Round no.): _	Room:	Stage:	Problem no.:	_
luror: Pract	Kalasture Signa	sture: again	orlyn	

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.: Slova kie 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 understanda	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	M	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 +4	Opponent ±1 + 4	Reviewer ±1 +A		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about topics presented or discussed		
 Explanation of formulae and symbols 	of the report 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 paroas a		
☐ 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		



Sco	rina	Guid	elines

ight (Round	no.):	4	Room:	7	Stage:	3	Problem no.:	6
unor:	Tour	Joy		Signatu	re:	-MG	by	

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 5
Lu Kellen 5	Horia 5	Minosko L
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 partial of
☐ 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			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	Ь	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 Quality of experimental technique(s)	Opponent ±1 + 1	Reviewer ±1 + 2 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 oick up of vacontrolled	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 IOC 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 parsies is
☐ 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:

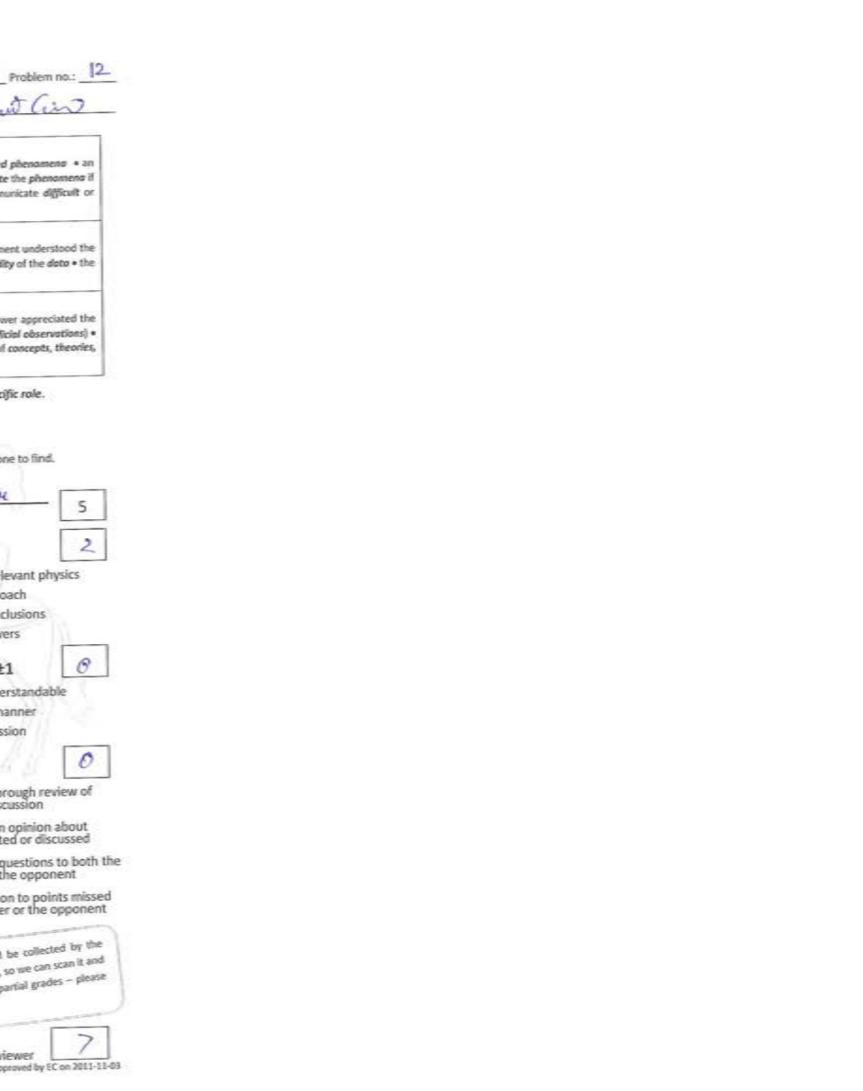
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical 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.: Ukrein 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	☐ 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 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
☐ Novelty of the report		archive your parties o
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer of after IOC feedback and approved by EC on 2011-11-0



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

Juror: Wassen Kundhusanjan Signature: Mrs. Le.

A report should include:

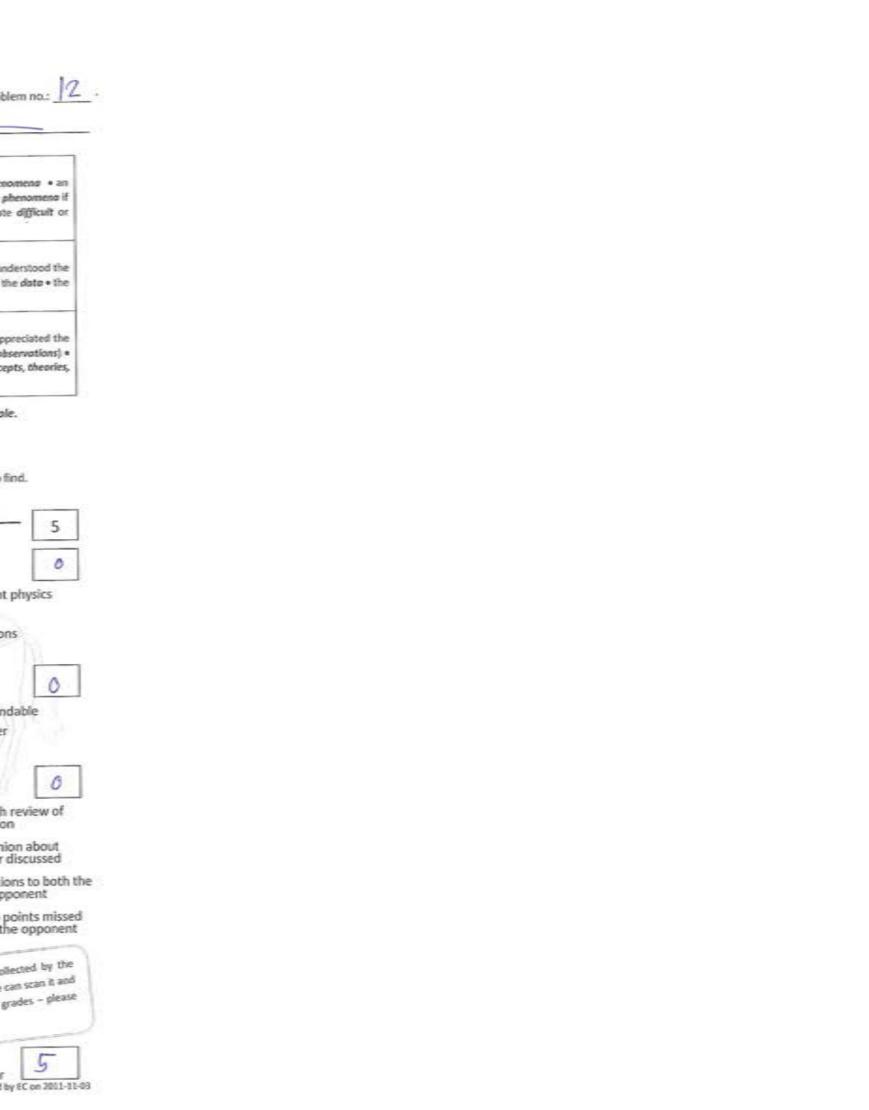
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gother and record data (or demanstrate the phenomena if appropriate) * linking of theoretical 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.: Ukraine. 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 +1	Presentation ±1	Presentation ±1 0
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1 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 of
☐ 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 2001-11-05



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	☐ 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			
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	11.64		
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 parton o		
☐ 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 (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 Ouality 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 PLEA TO MERICA FUN OF WITH	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.
Final Grade: Reporter	Final Grade: Opponent 3	Final Grade: Reviewer 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 ater 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 -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 41
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 rades - please
☐ Novelty of the report		archive your parties so
☐ Contribution to the discussion		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



JUJIII GAIRCIIIC	Scoring	Guidel	ines
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Fight (Round no.):	4	Boom:	8	Stage:	2	Problem no.: _S	
S. 10.		reide	ienati	ISP:	Viet	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 co The reporter, opponent and reviewer ea 	ch start with 5 points.	
 Consider the following suggestions to as 	dd to or deduct from the initial 5 point	ts.
 Select each partial grade from each section 	on and write it in the corresponding t	box.
Don't punish missing 'answers' when no Reject # 17,19,3,		
Rep.: Nigerta 5	Opp.: Ukraine	Rev.: 8/421 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 +
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 of the report	points Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors 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	on .
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 pares 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 2011-11-



ight (Round no.): 4	Room: &	Stage:	2	Problem no.:	5
WOOT STANISLAN			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.: RPATIL 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		
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		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 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 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



10M (Koting no I: 14 MOOTIC M. 34	age: - Problem no	-10
ight (Round no.): 4 Room: 8 St. uror: Kat Walland Signature:	MIM	

A report should include:

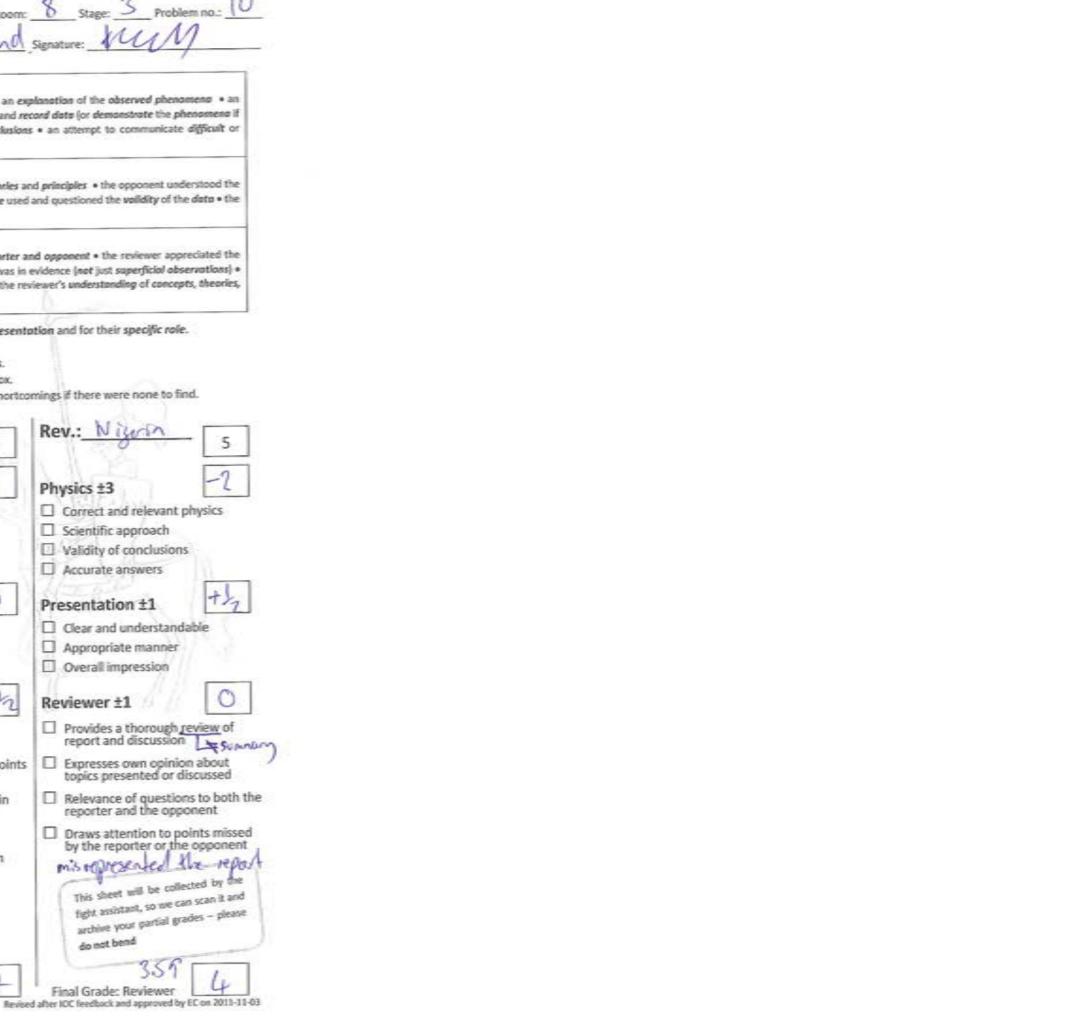
 a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena. application of appropriate mothematics + reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . linking of theoretical and 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.: Nigern 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 + 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 you co-	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	Final Grade: Opponent	Final Grade: Reviewer 4



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

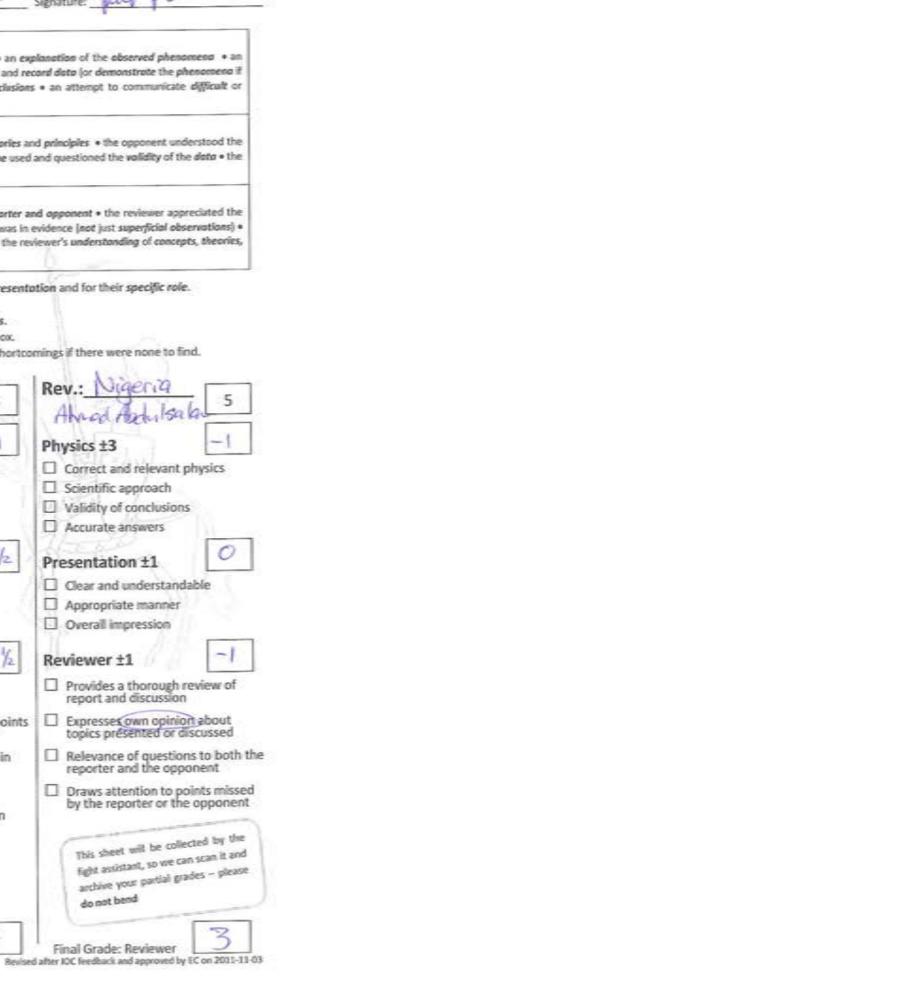
• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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	Rev.: Nigeria 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		archive your parvar 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.: Okrsin 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:

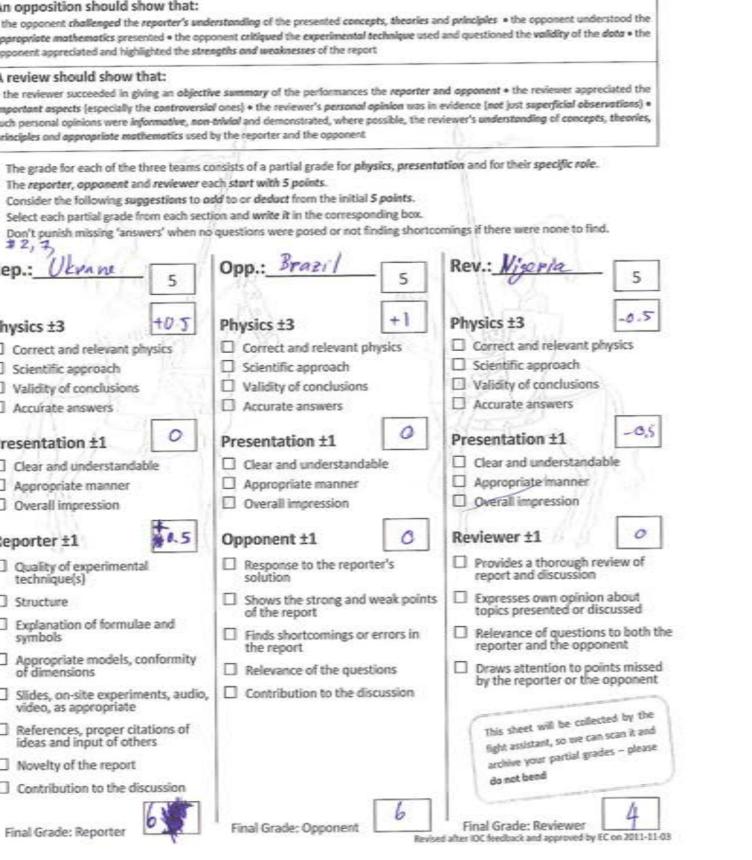
 a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mathematics * reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . linking of theoretical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

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Rep.: Utrane 5	Opp.: Brazil 5	Rev.: Nigoria 5
Physics ±3	Physics ±3 +1	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 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 fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parus s
☐ Contribution to the discussion		do not bend
() ()	6	4



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ight (Round no.):	4	Rooms	8	Stage:	3	Problem no.:	10
WER STANISH					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.: VKRAINE 5	Opp.: BRAZIL 5	Rev.: DIGERIA 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 Quality of experimental technique(s) 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 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 parus o
☐ 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 2011-11-08



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 4 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 Quality of experimental technique(s) Structure	Opponent ±1 Response to the reporter's solution Shows the strong and weak points	Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about
Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio,	of the report Finds shortcomings or errors in the report Relevance of the questions Contribution to the discussion	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
Sides, on-site experiments, audit, video, as appropriate References, proper citations of ideas and input of others Novelty of the report Contribution to the discussion	Continuous to the discossion	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades - please do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5011-11-0



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 lundhikanjama	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	6	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 ALLINSON
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, presenta	tion and for their specific role.
 The reporter, opponent and reviewer ex 		
	dd to or deduct from the initial 5 points. Ion and write it in the corresponding box.	
	questions were pased or not fisding shortco	mings if there were none to find.
Al more	0 (015)	(I TTAL)
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
THE ANT CONDUCE !	400	400000000000000000000000000000000000000
Presentation ±1	Presentation ±1 Y2	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 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 profind grades - please
□ Novelty of the report		archive your parous a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Jater IOC feedback and approved by EC on 2011-11-03



ight (Round no.): 4 Room	n: F9 Stage:	1 Problem no : 14	
wor: Aplied 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

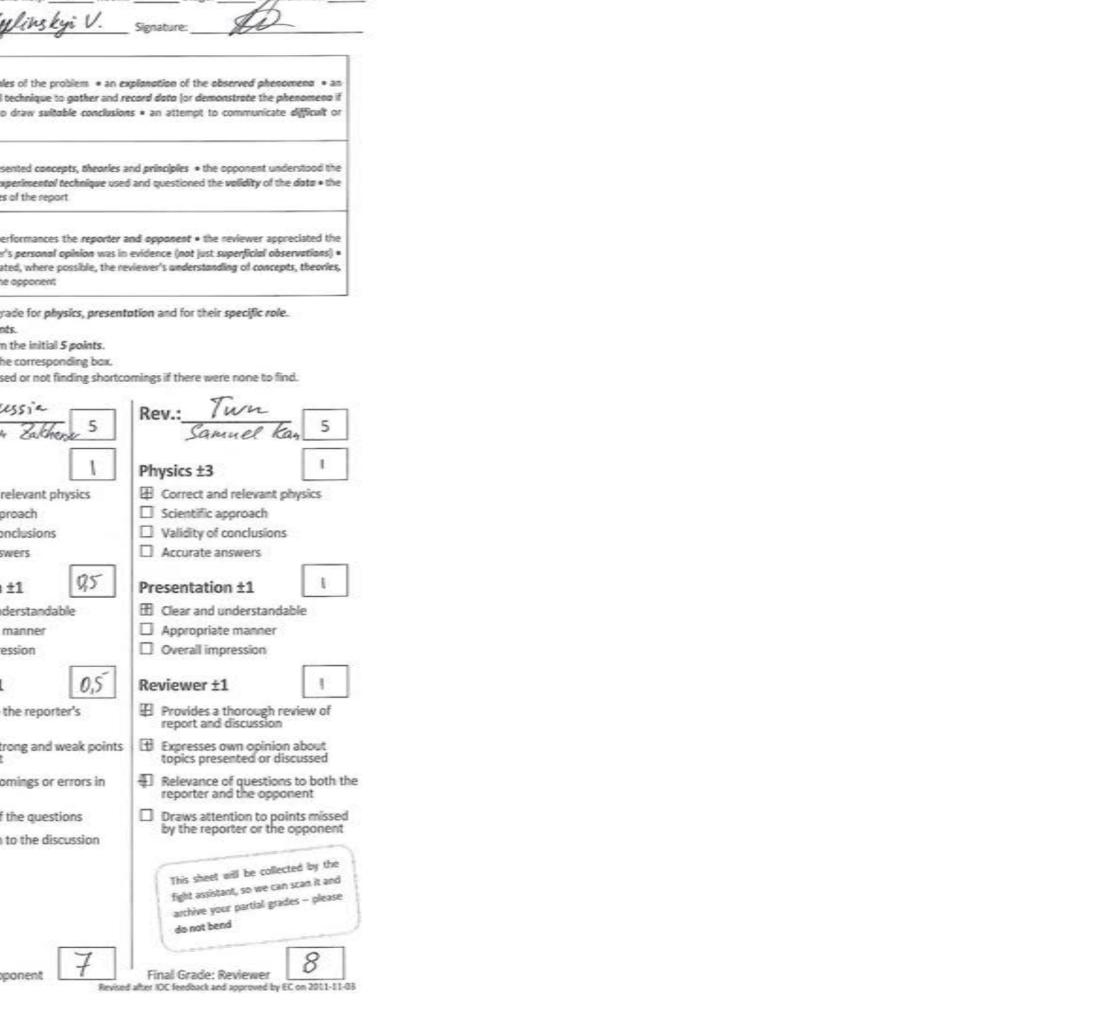
- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent * the reviewer appreciated the
 important aspects (especially the controversial ones) * the reviewer's personal opinion was in evidence (not just superficial observations) *
 such personal opinions were 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.: locwan 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 40.4		
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	is and principles of the problem * an explanation of the observed phenomena * an experimental technique to gother and record data (or demonstrate the phenomena if tol findings to draw suitable conclusions * an attempt to communicate difficult or one
	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)	mony 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, opponent and reviewer each store Consider the following suggestions to odd to or Select each partial grade from each section and 	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	c_9_Sta	ge: <u>1</u>	_ 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 6	Final Grade: Reviewer



Scoring Guidelin	Fight (Round no.): 4 Room: Nor: Kerry Parker	9 Stage: 1 Problem no.: 19
application of appropriate mathematics • re	s, theories and principles of the problem • an expansion of a specimental technique to gather and resperimental findings to draw suitable conclusions	planation of the observed phenomena • an cord data (or demanstrate the phenomena if
An opposition should show that: • the opponent chollenged the reporter's an appropriate mathematics presented • the opponent appreciated and highlighted the str	derstanding of the presented concepts, theories as oponent 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 controvers	tive summary of the performances the reporter a lof ones] • the reviewer's personal opinion was in o-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 set 	add to or deduct from the initial 5 points. ction and write it in the corresponding box. o questions were posed or not finding shortco	mings if there were none to find.
Rep.: Tue and 5	Opp.: Zalharov 5	Rev.: Samuel Kan 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
☐ Scientific approach Vote Tures ☐ Validity of conclusions X plugger ☐ Accurate answers X expt 1	Scientific approach Validity of conclusions Accurate answers	Scientific approach Validity of conclusions Accurate answers
Presentation ±1 to 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 technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure Explanation of formulae and ■ Compared to the structure of t	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
symbols Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent Draws attention to points missed
of dimensions Slides, on-site experiments, audio	Relevance of the questions Contribution to the discussion	by the reporter or the opponent
video, as appropriate References, proper citations of ideas and input of others	lus mined.	This sheet will be collected by the light assistant, so we can stan it and light assistant, so we can stan it and
Novelty of the report		archive your pareas by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5.	Final Grade: Reviewer 5

Chris	f.	J	1	
Circ	~	7	1151	1

Sco	rina	Guid	P	lines
JUU	rilig	Guiu	C	IIIES

Fight (Ro	und no.):	Room:	9	_Stage:	Problem no.:	14
honor	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.: Sured 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	of the report	topics presented or discussed	
symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent.	
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed	
Slides, on-site experiments, audio		by the reporter or the opponent	
video, as appropriate	, and the second of the second		
 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 parusi gran	
☐ Contribution to the discussion		do not bend	
7	Final Grades Consessed 5	Final Grado: Rovinson	

	Fight (Round no.): 4 Room:	9 Stage: 2 Problem go.: 6
Scoring Guideling	nes wor. Alan Allinson	
application of appropriate mathematics • r	its, theories and principles of the problem + an ex easonable experimental technique to gother and re experimental findings to draw suitable conclusion doble manner	ecord data (or demonstrate the phenomena if
	nderstanding of the presented concepts, theories a pponent critiqued the experimental technique used	
important aspects (especially the controver	ctive summary of the performances the reporter a sial 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 se 	oconsists of a partial grade for physics, present each stort with 5 points. odd to or deduct from the initial 5 points. ection and write it in the corresponding box. no questions were posed or not finding shortco Town on	
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	Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Appropriate manner Overall impression	Appropriate manner Overall impression
Reporter ±1 Quality of experimental technique(s) Simulation	Opponent ±1 Response to the reporter's solution	Reviewer ±1 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
☐ Structure Str	Shows the strong and weak points of the report Finds shortcomings or errors in	Expresses own opinion about topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions filting — Slides, on-site experiments, audio wideo as appropriate	the report Relevance of the questions Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
video, as appropriate References, proper citations of ideas and input of others	contradition	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	G.	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 sec Don't punish missing 'answers' when no Rep.: Stepan Zaklasa 5 Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	odd to or deduct from the initial 5 points. tion and write it in the corresponding box. questions were posed or not finding shortco Town on Opp.: Yin Cheek Chey 5 Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions			
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 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 This sheet will be collected by the		
References, proper citations of ideas and input of others Novelty of the report Contribution to the discussion	Contradich	This sheet will be observed of fight assistant, so we can scan it and archive your partial grades – please do not bend		
Final Grade: Reporter	Final Grade: Opponent Registr	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03		

ight (Round no.):	Room: F	Stage:	2 Pro	oblem no.:	6
uror: flehmal	Danest Su	nature:	10	×	

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.: 101004 5	Rev.: Balgonia 5
Physics ±3	Physics ±3	Physics ±3 +1
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +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 g-
☐ Contribution to the discussion		do not bend
7	Final Grade: Opponent 7	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 Zakhanov S	5	Opp.: Jaiwan Vin-Chieh	5	Rev.: Bulgaria 5
Ph	nysics ±3	1,5	Physics ±3	1	Physics ±3
团	Correct and relevant phy	rsics	Correct and relevant	physics	☐ Correct and relevant physics
	Scientific approach		☐ Scientific approach		☐ Scientific approach
	Validity of conclusions		T Validity of conclusion	s	☐ Validity of conclusions
-	Accurate answers		☐ Accurate answers		☐ Accurate answers
Pr	esentation ±1	1	Presentation ±1	0,5	Presentation ±1
Œ	Clear and understandab	le	☼ Clear and understand	able	☐ Clear and understandable
	Appropriate manner		☐ Appropriate manner		☐ Appropriate manner
	Overall impression	3.6	☐ Overall impression		☐ Overall impression
Re	eporter ±1	3/4	Opponent ±1	0,5	Reviewer ±1
. 🎚	Quality of experimental technique(s)		Response to the repo	rter'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
. 田	Explanation of formulae symbols	and	Finds shortcomings of the report	r errors in	Relevance of questions to both the reporter and the opponent
- ₽	Appropriate models, cor of dimensions	nformity	☐ Relevance of the que	stions	Draws attention to points missed by the reporter or the opponent
- #3	Slides, on-site experime video, as appropriate	nts, audio,	☐ Contribution to the d	iscussion	
· B	References, proper citat ideas and input of other	ions of			This sheet will be collected by the fight assistant, so we can scan it and soil enades – please
	Novelty of the report				archive your partial grand
	Contribution to the disc	ussion			do not bend
F	Final Grade: Reporter	8	Final Grade: Opponent	7	Final Grade: Reviewer Jater ICC feedback and approved by EC on 2011-11-03

principle approach aliatify of conclusions courate answers entation ±1 lear and understandable ppropriate manner everal impression ewer ±1 covides a thorough review of eport and discussion expresses own opinion about epievance 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 light assistant, so we can youn it and archive your partial grades - please do not bend I Grade: Reviewer Incode R				
alidity of conclusions courate answers entation ±1 lear and understandable ppropriate manner werall impression ewer ±1 rowides a thorough review of sport and discussion spresses own opinion about spics presented or discussed elevance of questions to both the sporter 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 Il Grade: Reviewer Partial grades — please Carade: Reviewer	ics ±3			
entation ±1 lear and understandable ppropriate manner verall impression ewer ±1 rovides a thorough review of sport and discussion sports presented or discussed elevance of questions to both the sporter and the opponent raws attention to points missed y the reporter or the opponent This sheet will be collected by the light assistant, so we can scan it and archive your partial grades – please do not bend I Grade: Reviewer	orrect and relevant physics			
entation ±1 lear and understandable ppropriate manner verall impression ewer ±1 rovides a thorough review of eport and discussion kpresses own opinion about 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 light assistant, so we can scan it and light assistant, so we can scan it and archive your partial grades – please do not bend	cientific approach			
eer and understandable ppropriate manner werall impression ewer ±1 rovides a thorough review of sports and discussion xpresses own opinion about spics presented or discussed elevance of questions to both the sporter and the opponent this sheet will be collected by the light assistant, so we can scan it and light assistant.	alidity of conclusions			
lear and understandable ppropriate manner werall impression ewer ±1 rovides a thorough review of eport and discussion spresses own opinion about spics presented or discussed elevance of questions to both the eporter and the opponent traws attention to points missed by the reporter or the opponent This sheet will be collected by the dight assistant, so we can scan it and the training your partial grades – please do not bend Il Grade: Reviewer	ccurate answers			
lear and understandable ppropriate manner werall impression ewer ±1 rovides a thorough review of eport and discussion spresses own opinion about spics presented or discussed elevance of questions to both the eporter and the opponent traws attention to points missed by the reporter or the opponent This sheet will be collected by the dight assistant, so we can scan it and the training your partial grades – please do not bend Il Grade: Reviewer				
ppropriate manner werall impression ewer ±1 rovides a thorough review of eport and discussion spresses own opinion about spics presented or discussed elevance of questions to both the erporter and the opponent raws attention to points missed by the reporter or the opponent This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and archive your partial grades – please do not bend Grade: Reviewer	entation ±1			
revides a thorough review of sport and discussion works so we can scan it and service will be collected by the flight assistant, so we can scan it and archive your partial grades — please do not bend	lear and understandable			
rovides a thorough review of sport and discussion worksesses own opinion about spics presented or discussed elevance of questions to both the eporter and the opponent raws attention to points missed with the reporter or the opponent. This sheet will be collected by the light assistant, so we can scan it and archive your partial grades – please do not bend.	ppropriate manner			
rovides a thorough review of sport and discussion expresses own opinion about spics presented or discussed selevance of questions to both the sporter and the opponent raws attention to points missed at the reporter or the opponent. This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and archive your partial grades — please do not bend	verall impression			
xpresses own opinion about spics presented or discussed elevance of questions to both the sporter and the opponent raws attention to points missed y the reporter or the opponent This sheet will be collected by the light assistant, so we can scan it and archive your partial grades — please do not bend	ewer ±1			
elevance of questions to both the eporter and the opponent raws attention to points missed by the reporter or the opponent. This sheet will be collected by the fight assistant, so we can scan it, and fight assistant, so we can scan it and fight assistant. So we can scan it and fight assistant grades – please do not bend	rovides a thorough review of eport and discussion			
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 Grade: Reviewer	xpresses own opinion about opics presented or discussed			
this sheet will be collected by the fight assistant, so we can scan it and arthive your partial grades – please do not bend Grade: Reviewer	elevance of questions to both the eporter and the opponent			
archive your partial grades - please do not bend Grade: Reviewer	raws attention to points missed y the reporter or the opponent			
Grade: Reviewer	fight assistant, so we archive your partial grades - please archive your partial grades - please			
	Grade: Reviewer			

Scoring	(21111/10)	lines
Juling	GRIRE	111103

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:

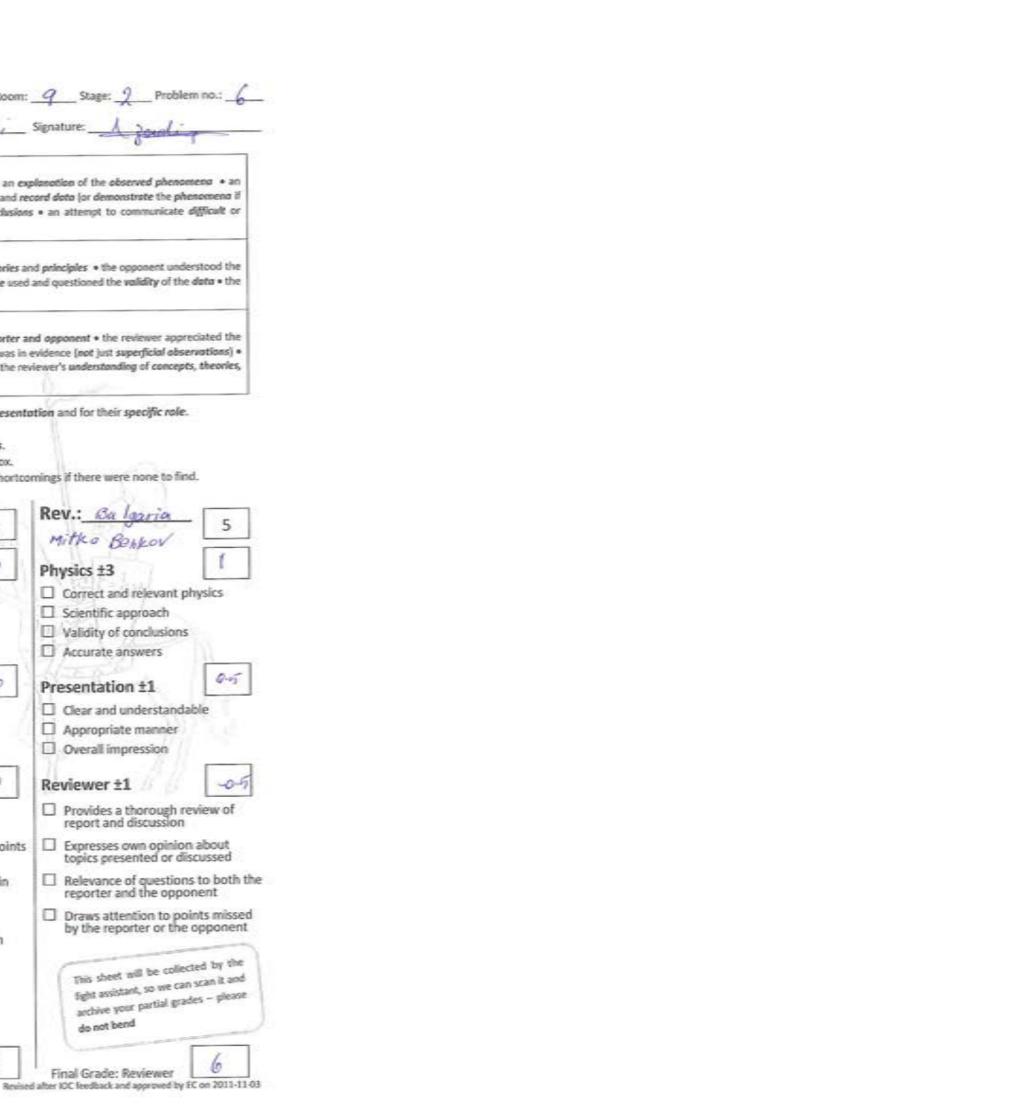
 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 Yin - Chieh Che	5	Rev.: Ba lgaria 5	
Physics ±3	1	Physics ±3	0	Physics ±3	
☐ Correct and relevant phy	usirs	☐ Correct and relevant	nhysics	☐ Correct and relevant physics	
☐ Scientific approach	777	☐ Scientific approach	, , , , , , , , , , , , , , , , , , , ,	☐ Scientific approach	
☐ Validity of conclusions	115	☐ Validity of conclusion	ns .	☐ Validity of conclusions	
☐ Accurate answers	× 1000	☐ Accurate answers	7	☐ 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	112	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 an of the report	d weak points	Expresses own opinion about topics presented or discussed	
 Explanation of formulae symbols 	and	☐ Finds shortcomings of	or errors in	Relevance of questions to both the reporter and the opponent	
Appropriate models, co	nformity	the report Relevance of the que	estions	☐ Draws attention to points missed	
Slides, on-site experime video, as appropriate	nts, audio,	☐ Contribution to the		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 parus. s	
☐ Contribution to the disc	ussion			do not bend	
Final Coade: Beneator	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:

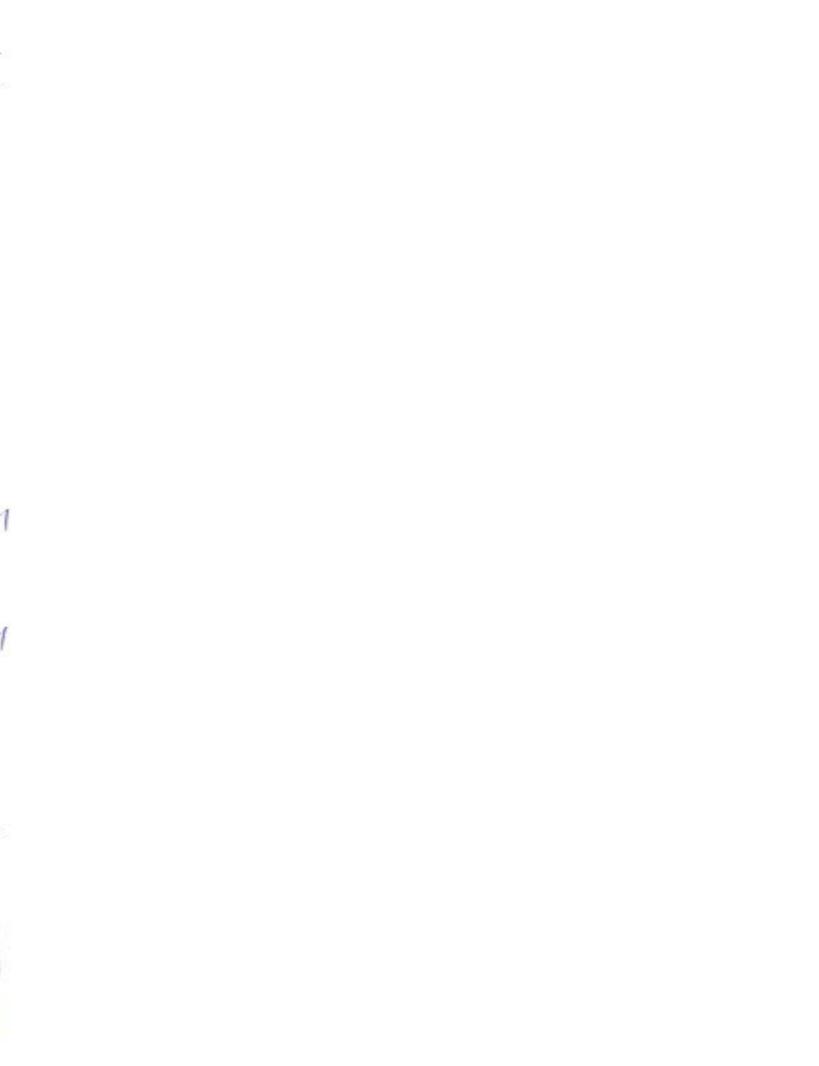
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
appropriate appreciated and highlighted 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	2	Problem no.:	6	
	Buck			Cionaty	ma-	3.	in			

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:

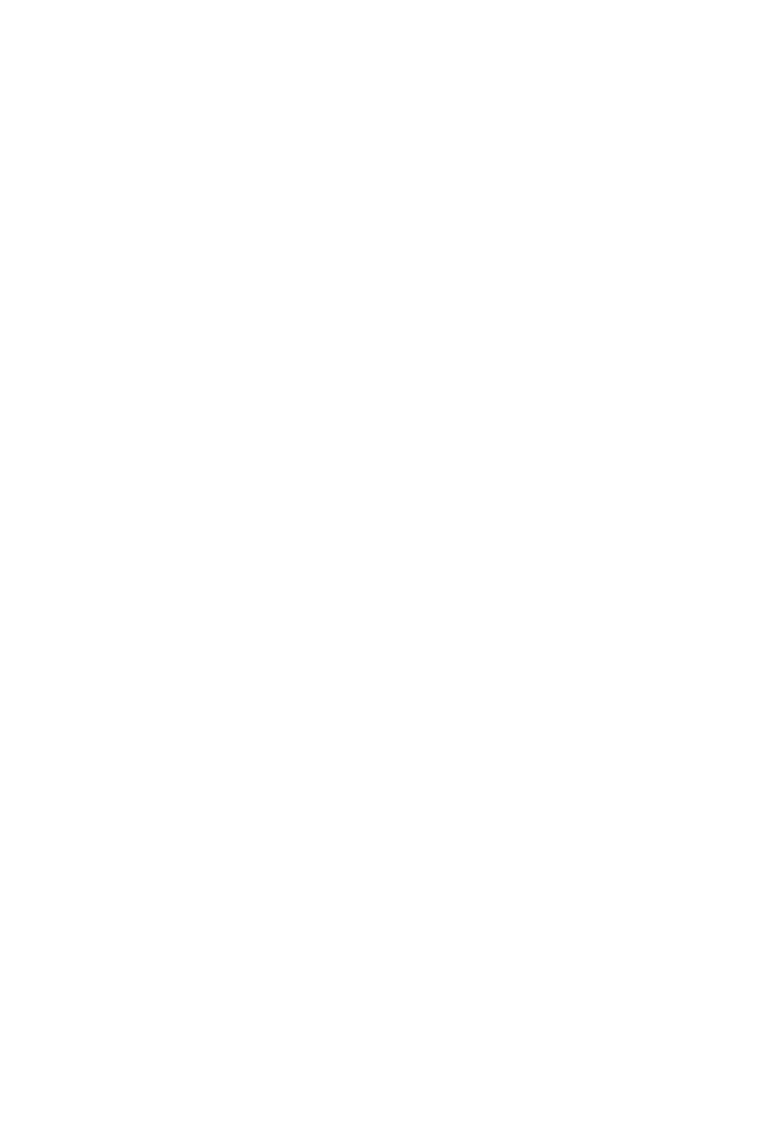
the opponent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the
appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the data * the
apponent appreciated and highlighted 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 questions to both the reporter and the opponent.
☐ Appropriate models, conformity	the report	
of dimensions	☐ Relevance of the questions	by the reporter or the opponent
 Slides, on-site experiments, audio, video, as appropriate 	☐ Contribution to the discussion	
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial are
☐ Contribution to the discussion	5-4-7-7-7-7-7-7	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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Fight (Round no.): Roor	ncs	tage: Prob	lem ng:
duror: AALLINSON	Signature:	Alm	All

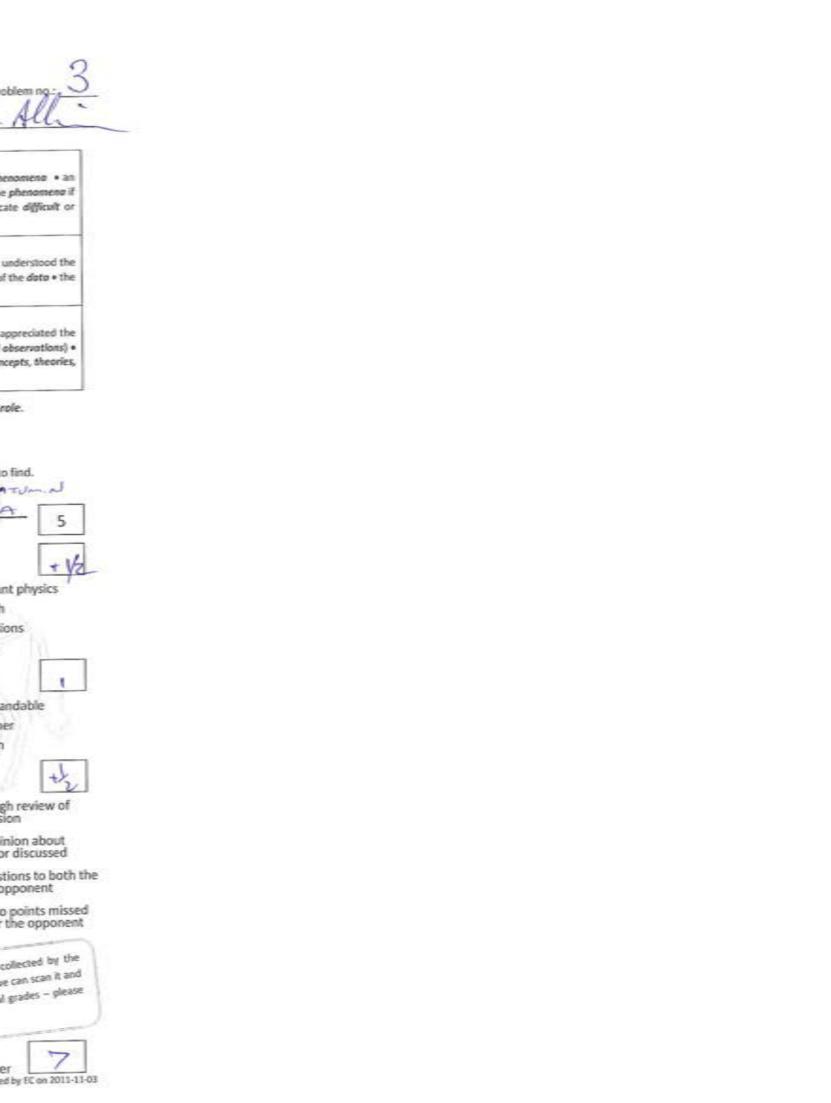
a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics * reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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 ☐ Validity of conclusions	☐ 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 all S	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
☐ Quality of experimental technique(s) flowed.	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	Relevance of questions to both th 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	inclease - not formation to the discussion) talking formation 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 puriou	e C light assistant, so we can so 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	-				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			
 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 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	Fight (Round no.): S Juror: Kulius		-			
application of appropriate math	ematics • reason tical and experi	able experimental technique mental findings to draw su	e to gother and rec	elenation of the observed phenomena + a cord data (or demonstrate the phenomena + + an attempt to communicate difficult of			
An opposition should sh	ow that: eporter's underst	tanding of the presented co	of technique used	d principles • the opponent understood the and questioned the validity of the data • the			
important aspects (especially the	ing an objective : e controversiol o emotive, non-trit	nes) • the reviewer's person viol and demonstrated, wher	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, theorie			
The reporter, opponent and Consider the following sugge Select each partial grade for Don't punish missing 'answ Rep.: Ya'wan Lao Yu Ku	pestions to add om each section ers' when no qu	to or deduct from the init and write it in the corres	ponding bax.	Rev.: Russia Vitulg Maturia 5			
Physics ±3	±1 F	Physics ±3	1	Physics ±3			
Correct and relevant ph Scientific approach Validity of conclusions Accurate answers	1	Correct and relevant Scientific approach Validity of conclusio Accurate answers		☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers			
Presentation ±1	1 1	Presentation ±1	95	Presentation ±1			
☐ Clear and understandal Appropriate manner Overall impression	1	Clear and understan Appropriate manne Overall impression		☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression			
Reporter ±1		Opponent ±1	0.5	Reviewer ±1 /			
Quality of experimenta technique(s)		B Response to the rep	orter's	Provides a thorough review o report and discussion			
☐ Structure	1	El Shows the strong ar	nd weak points	Expresses own opinion about tools, proceeded or discussed			
Explanation of formula symbols	e and	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 	enformity	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 oppone			
References, proper cital ideas and input of other	itions of			This sheet will be collected by the fight assistant, so we can scan it is seen as a second area of the secon			
□ Novelty of the report				archive your parties or			
☐ Contribution to the dis	curring			do not bend			

corina	Guideline	Fight (Round no.):_	4 Room:	9 Stage: 4 Problem	n no.:
coming	9616101111	Juror: Munit	eye	Signature:	
report should	include;		ublant a serious	leasting of the observed observe	26 + 20s
plication of approp propriate] • linking	niote mathematics • reas	onable experimental technique erimental findings to draw suit	to gother and rec	ilonation of the observed phenom and data (or demonstrate the phenomenant or an attempt to communicate d	nomena il
the opponent challe propriate mathem	atics presented • the appoint	erstanding of the presented con- onent critiqued the experimenta agths and weaknesses of the rep	if technique used a	d principles • the opponent under and questioned the volidity of the	rstnod the data • the
portant aspects (e ch personal opinio	eded in giving an objective specially the controversions were informative, non-	fones) • the reviewer's persona	if opinion was in e possible, the revi	nd opponent • the reviewer appre evidence (not just superficial obser- iewer's understanding of concepts	votions) •
The reporter, opp Consider the folk Select each partic	sonent and reviewer ea owing suggestions to or al grade from each secti sing 'answers' when no	ch start with 5 points. Id to or deduct from the initia on and write it in the corresp	of 5 points. conding bax. finding shortcor	mines if there were none to fine Rev.: Russia Vitely Maturi	
rysics ±3	±1	Physics ±3	1	Physics ±3	
Correct and re	levant physics	d Correct and relevant	physics	☐ Correct and relevant ph	nysics
Scientific appr		☐ Scientific approach		☐ Scientific approach	
Validity of con	32.5	Validity of conclusion	s	☐ Validity of conclusions	
Accurate answ	C. 830000	Accurate answers	- 9	☐ Accurate answers	
resentation :	H1	Presentation ±1	95	Presentation ±1	
Clear and und	erstandable	Clear and understand	lable	E Clear and understanda	ble
Appropriate n		Appropriate manner		☐ Appropriate manner	
Overall impres		Overall impression		Overall impression	
eporter ±1		Opponent ±1	0.5	Reviewer ±1	1
Quality of exp technique(s)	erimental	Response to the reposition	orter's	Provides a thorough re report and discussion	view of
Structure		Shows the strong and of the report	d weak points	Expresses own opinion topics presented or dis	about
Explanation of symbols	f formulae and	Finds shortcomings of	or errors in	Relevance of questions reporter and the oppor	to both the
Appropriate n	nodels, conformity	the report Relevance of the que	estions	E Draws attention to poi	nts missed
Slides, on-site video, as appr	experiments, audio, opriate	☐ Contribution to the d	iscussion	by the reporter or the	
	roper citations of	N. Control		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			do not bend	
					~7
	-	1	7		4

Fight (Round no.):	4	Rooms	9	Stage:	3	Problem no.:	_3_
luror: Dina	170	1	Signatu	ine: _ {	2	die	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

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.: Belgaria 5	Rev.: Russia 5		
Hao Yu Ku	Simeon Stefanov	vitalii reatunin		
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	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 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 or		
☐ 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:

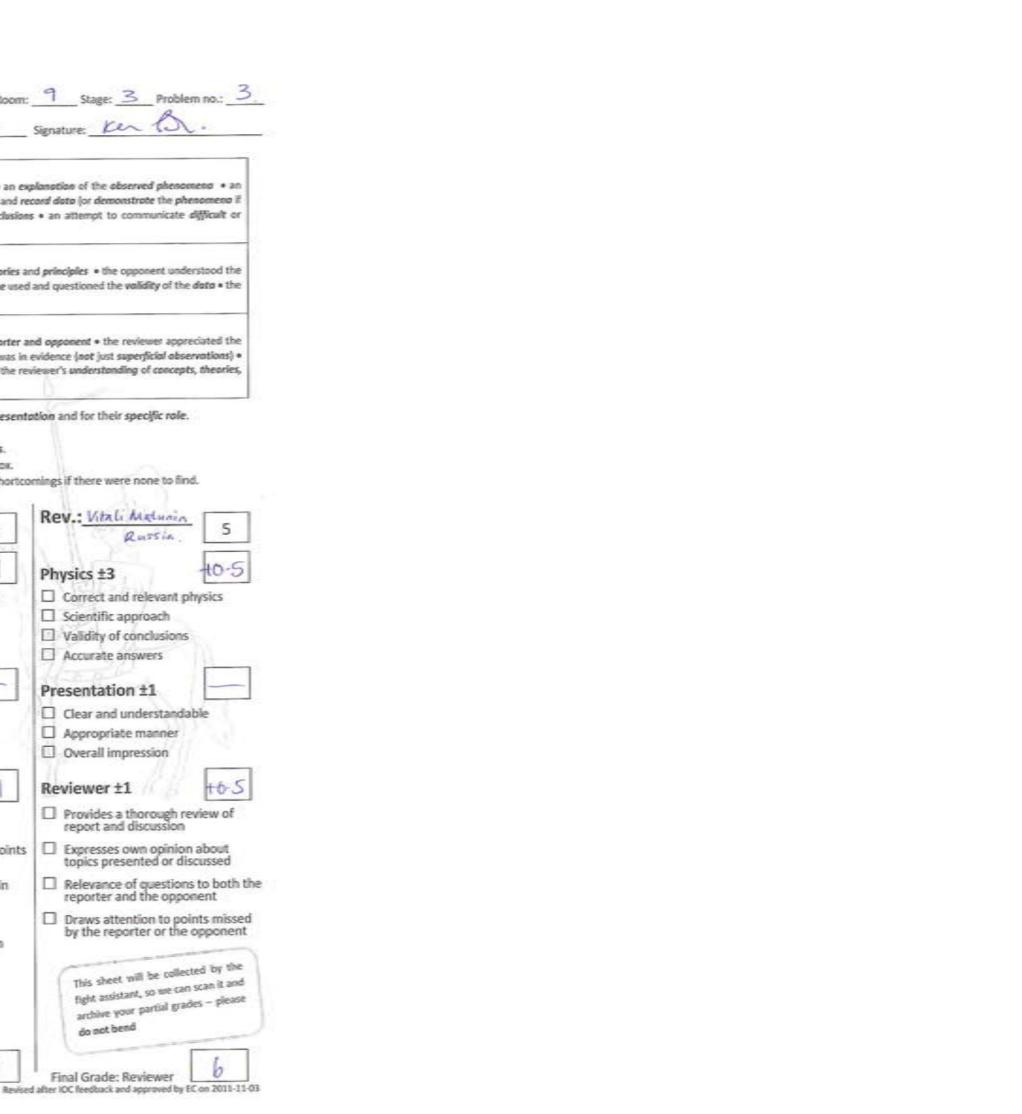
* a presentation of the appropriate concepts, theories and principles of the problem * an explanation of the observed phenomena * an application of appropriate mothematics • reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) * linking of theoretical 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			Clanch	int-	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.
- 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.: 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 fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties of
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 6	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												
Accepted Problem		14			6			3				