S	CO	ri			g	G	U	Contraction to	d	e	The same of the sa		n	le	5)
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Fight (Round no.):	Roon	n: Stage:	3 Problem	no.: 5
Juror: Lo	Pasker	Signature:		

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

A report should include:

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

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories 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:

Final Grade: Reporter

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

 Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 							
Rep.: 5	Opp.: 5	Rev.: 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)	Opponent ±1 Response to the reporter's solution	Reviewer ±1 Provides a thorough review of report and discussion					
 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 	 □ Shows the strong and weak points of the report □ Finds shortcomings or errors in the report □ Relevance of the questions □ Contribution to the discussion 	 □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and archive your partial grades – please archive your partial grades – please 					
☐ Contribution to the discussion		do not bend					

Final Grade: Opponent

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							Grand P						_	_		_	-	

Coning Cuidali	Fight (Round no.): 4 Room	n: \underline{C} Stage: $\underline{3}$ Problem no.: $\underline{5}$
Scoring Guideling	185 Juror: PATRICK SOUDAN	Signature: Det Sr de
application of appropriate mathematics • re appropriate) • linking of theoretical and excomplex ideas in an effective and understand	es, theories and principles of the problem • an e asonable experimental technique to gather and responding to draw suitable conclusions and the manner	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's un appropriate mathematics presented • the opponent appreciated and highlighted the str	derstanding of the presented concepts, theories a oponent critiqued the experimental technique use rengths and weaknesses of the report	and <i>principles</i> • the opponent understood the d and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controvers	tive summary of the performances the reporter a ial ones) • the reviewer's personal opinion was in n-trivial and demonstrated, where possible, the re I by the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer expensions Consider the following suggestions to a select each partial grade from each second 	consists of a partial grade for <i>physics, present</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . tion and <i>write it</i> in the corresponding box. o questions were posed or not finding shortco	
Rep.: GERMANY 5	Opp.: SiNGAPORE 5	Rev.: BEZARUS 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach☐ Validity of conclusions	Scientific approach Validity of conclusions	☐ Scientific approach
☐ Accurate answers	Accurate answers	☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☑ Clear and understandable	Clear and understandable
☐ Appropriate manner ☐ Overall impression	☐ Appropriate manner ☐ Overall impression	☐ 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
Explanation of formulae and symbols	Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial graves
Contribution to the discussion		do not bend

Final Grade: Reporter

印

Final Grade: Opponent



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



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	CO		ø		T	M			M		Magain.		F	7	C
Section 1		8	9		超	2		S			8	8			-

Scoring Guidelii			n:C, Stage:3 _ P Signature:	roblem no.: 5			
A report should include: • a presentation of the appropriate concept application of appropriate mathematics • reappropriate) • linking of theoretical and excomplex ideas in an effective and understand	easonable experimental techniqu ex perimental findings to draw s i	e to <i>gather</i> and a	record data (or demonstrate th	ne phenomena if			
An opposition should show that: • the opponent challenged the reporter's unappropriate mathematics presented • the opponent appreciated and highlighted the st	nderstanding of the presented co pponent critiqued the experiment	al technique use	and <i>principles</i> • the opponent d and questioned the <i>validity</i> o	understood the of the <i>data</i> • the			
A review should show that: • the reviewer succeeded in giving an object important aspects (especially the controvers such personal opinions were informative, no principles and appropriate mathematics use	sial ones) • the reviewer's <i>person</i> on-trivial and demonstrated, when	<i>al opinion</i> was in e possible, the re	n evidence (not just superficial	observations) •			
The grade for each of the three teams The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each see Don't punish missing 'answers' when r	each <i>start with 5 points</i> . <i>add</i> to or <i>deduct</i> from the initi ction and <i>write it</i> in the corres	al <i>5 points</i> . conding box.					
Rep.:5	Opp.:	5	Rev.:	5			
hysics ±3	Physics ±3	+1	Physics ±3	41			
Correct and relevant physics	☑ Correct and relevant	physics	Correct and relevan	nt physics			
T Scientific approach	☐ Scientific approach		☐ Scientific approach				
] Validity of conclusions	☐ Validity of conclusion	S	☐ Validity of conclusion				
Accurate answers	☐ Accurate answers		☐ Accurate answers				
resentation ±1	Presentation ±1	+1	Presentation ±1	+1			
Clear and understandable	☐ Clear and understand	able	☐ Clear and understandable				
Appropriate manner	☐ Appropriate manner		☐ Appropriate manne				
Overall impression	Overall impression						

Ш	Accurate ans	wers	
Pro	esentation	±1	

Scientific approach

☐ Validity of conclusions

☐ Clear and understandable ☐ Appropriate manner

☐ Overall impression

Reporter ±1

Rep.:

Physics ±3

Quality of experimental

technique(s)

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

Final Grade: Reporter

☐ Contribution to the discussion

☐ Overall impression

Opponent ±1

☐ Response to the reporter's solution

Shows the strong and weak points of the report

Finds shortcomings or errors in the report

☐ Relevance of the questions

☐ Contribution to the discussion

☐ Overall impression

Reviewer ±1

Provides a thorough review of report and discussion

Expresses own opinion about topics presented or discussed

Relevance of questions to both the reporter and the opponent

Draws attention to points missed by the reporter or the opponent

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

do not bend

Final Grade: Opponent

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

Scoring Guidelii	Fight (Round no.): Roon	n: C Stage: $\frac{5}{2}$ Problem no.:						
Jeoning Galaciii	Juror: Kok Copulh	_ Signature:						
application of appropriate mathematics • r	ots, theories and principles of the problem • an e easonable experimental technique to gather and experimental findings to draw suitable conclusion adable manner	record 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 state.	nderstanding of the presented concepts, theories pponent critiqued the experimental technique use	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the						
important aspects (especially the controver.	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in on-trivial and demonstrated, where possible, the red by the reporter and the opponent	n evidence (not just superficial observations) •						
 The grade for 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.: Serrany 5	Opp.: Singapore 5	Rev.: Blorus 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						
Appropriate models, conformity of dimensions	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						

Final Grade: Reporter

☐ Contribution to the discussion

☐ Novelty of the report

Final Grade: Opponent

Final Grade: Reviewer

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

do not bend

archive your partial grades - please

		Fight (Round no.): Roc
Scoring	Guidelines	Juror: Rasolin MM

:	Stage: 3 Pro	blem no.: <u>5</u>	
	Signature:		

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

An opposition should show that:

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

A review should show that:

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

Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.								
Rep.: Girmony 5	Opp.: Singapure 5	Rev.: Belarus 5						
Physics ±3 +2.0	Physics ±3 +20	Physics ±3						
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 +0.5	Presentation ±1						
□ Clear and understandable	E Clear and understandable	E Clear and understandable						
Appropriate manner	Appropriate manner	Appropriate manner						
	Overall impression	① Overall impression						
Reporter ±1	Opponent ±1	Reviewer ±1 0.5						
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion						
⊞ Structure	E 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						
Appropriate models, conformity of dimensions	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		fight assistant, 50 We or archive your partial grades - please						
Contribution to the discussion		do not bend						

Final Grade: Reporter

8.0

Final Grade: Opponent

7.0

Final Grade: Reviewer

7.0

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

Cooulos		Fight (Round no.): Roo
Scoring	Guidelines	lurar: 6. 1 A D2-5

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

A report should include:

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

An opposition should show that:

• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* 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:

Final Grade: Reporter

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

	tion and <i>write it</i> in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find.		
Rep.: 6=21425 5	Opp.: SINGAPORE 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	Presentation ±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 Appropriate models, conformity	☐ Finds shortcomings or errors in the report	Relevance of questions to both the 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		fight assistant, so we com- archive your partial grades – please		
Contribution to the discussion		do not bend		

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Fight (Round no.): Room	Stage:	_ Problem no.: _ /
Juror: 6.240 20	Signature:	, , ,

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

A report should include:

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

An opposition should show that:

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

A review should show that:

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

 Select each partial grade from each sec 	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	omings if there were none to find.				
Rep.: Decarus 5	Opp.: GERMANY 5	Rev.: SINCAPORE 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 0.5				
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion				
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about				
☐ Explanation of formulae and	of the report	Expresses own opinion about topics presented or discussed				
symbols Appropriate models, conformity of dimensions	Finds shortcomings or errors in the report	Relevance of questions to both the 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		fight assistant, so we to archive your partial grades — please				
Contribution to the discussion		do not bend				
		personaliting				

	Fight (Round no.):	m: C Stage: 2 Problem no.: 11
Scoring Guideling	nes Juror: Ran linson	
	Jaiot. Natio /www.joro	Signature.
application of appropriate mathematics • r	ots, theories and principles of the problem • an easonable experimental technique to gather and experimental findings to draw suitable conclusionable manner	record data (or demonstrate the phenomena if
An opposition should show that:		
• the opponent <i>challenged</i> the <i>reporter's u</i>	nderstanding of the presented concepts, theories pponent critiqued the experimental technique use	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
• the reviewer succeeded in giving an object important aspects (especially the controver.	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in contrivial and demonstrated, where possible, the red by the reporter and the opponent	n evidence (not just superficial observations) .
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each ser 	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points</i> . add to or deduct from the initial 5 points. ction and write it in the corresponding box. no questions were posed or not finding shorto	
Rep.: Belacus 5	Opp.: Ginnany 5	Rev.: Singapure 5
Physics ±3 + ½	Physics ±3	Physics ±3
E 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
Presentation ±1	Presentation ±1	Presentation ±1
Elear and understandable	the Clear and understandable	
Appropriate manner	— Appropriate manner	
☐ Overall impression	Overall impression	, , , , , , , , , , , , , , , , , , , ,
		世 Overall impression
Reporter ±1 + 0.5	Opponent ±1 + 0.5	Reviewer ±1
☐ Quality of experimental	Response to the reporter's	Provides a thorough review of

Quality of experimental technique(s)

Explanation of formulae and symbols

Appropriate models, conformity of dimensions

If 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

Final Grade: Opponent

solution

of the report

the report

☐ Shows the strong and weak points

Finds shortcomings or errors in

H Relevance of the questions

☐ Contribution to the discussion

Provides a thorough review of report and discussion

Expresses own opinion about topics presented or discussed

Relevance of questions to both the reporter and the opponent

Draws attention to points missed by the reporter or the opponent

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

Scoring Guidelines

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

Juror: Zuwerna Rajkovit Signature: Signature:

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

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 opponent appreciated and highlighted the *strengths and weaknesses* of the report

A review should show that:

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

Rep.: 5	Opp.:5	Rev.:
Physics ±3	Physics ±3 42	Physics ±3
Correct and relevant physicsScientific 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 +1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	☐ Shows the strong and weak points	Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		fight assistant, so we be archive your partial grades – please
☐ Contribution to the discussion		do not bend

Final Grade: Opponent

Scoring Guidelines

Fight (Round n	o.): 4 Room	n: <u> </u>	tage: 2	_ Problem no.:	ΛΛ
	Rick SUDA				
oerimental techr	the problem • an e. nique to gather and r w suitable conclusion	ec <mark>ord data (</mark> o	r demonstrat	e the <i>phenomena</i>	if

A report should include:

• a presentation of the appropriate concepts, theories application of appropriate mathematics • reasonable e appropriate) • linking of theoretical and experimenta complex ideas in an effective and understandable mann

An opposition should show that:

• the opponent challenged the reporter's understanding 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 reporter, opponent and reviewer e Consider the following suggestions to e Select each partial grade from each sec 	consists of a partial grade for <i>physics, presen</i> t each start with 5 points. 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	
Rep.: BELARUS 5	Opp.: GERMANY 5	Rev.: SWGAPSRE 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	
☐ Scientific approach	☑ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	🖾 Clear and understandable	☑ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about
☐ Explanation of formulae and	of the report	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
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	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 a archive your partial grades – please
☐ Contribution to the discussion		do not bend
0/2	[2]	

Final Grade: Reporter

Final Grade: Opponent

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

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J	C	J.	Ø		Ĭ.	H	u	٠			#	H	u	H	No.	# H		220	
							Section 1	_			_			 _	_				-

Fight (Round no.):	Room: Stage:	: <u> </u>
Juror: Lobysh	' <u>€∨</u> Signature:	Blues

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

An opposition should show that:

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

A review should show that:

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

 Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 									
Rep.: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 +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							
☐ 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	Draws attention to points missed by the reporter or the opponent							
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and							
□ Novelty of the report		fight assistant, so we con- archive your partial grades – please							
Contribution to the discussion		do not bend							
	7								

Final Grade: Opponent

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

Scaring Cuidali	Fight (Round no.): Rool	
Scoring Guideli	Juror: KA Capulur	Signature:
application of appropriate mathematics • 1	ots, theories and principles of the problem • an reasonable experimental technique to gather and experimental findings to draw suitable conclusionable manner	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's unappropriate mathematics presented • the component appreciated and highlighted the state.	inderstanding of the presented concepts, theories apponent critiqued the experimental technique us	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controver	ctive summary of the performances the reporter resial ones) • the reviewer's personal opinion was in contrivial and demonstrated, where possible, the red by the reporter and the opponent	n evidence (not just superficial observations) •
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points</i> . <i>add</i> to or <i>deduct</i> from the initial <i>5 points</i> . ction and <i>write it</i> in the corresponding box. no questions were posed or not finding shorte	
Rep.: Blanur 5	Opp.: Gemany 5	Rev.: Singapore 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☑ Clear and understandable☑ Appropriate manner☑ Overall impression	☐ Clear and understandable☐ Appropriate manner☑ Overall impression	Clear and understandable Appropriate manner Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about
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	reporter and the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		fight assistant, so we can see archive your partial grades – please
Contribution to the discussion		do not bend
		photocommunication control and

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

Final Grade: Reporter

Fight (Round no.):	Room: <u>C</u>	_ Stage:	Problem no.: 16
Juror: Rawlinson	Signatu	re: <u>Quuf</u>	

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

A report should include:

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

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories 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:

Final Grade: Reporter

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

	tion and write it in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find.
Rep.: Singapure 5	Opp.: Belgrus 5	Rev.: Girmany 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
Presentation ±1 +0,6 Clear and understandable Appropriate manner Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 †0.5 † Clear and understandable † Appropriate manner † Overall impression
Reporter ±1 ±0.6	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
	Shows the strong and weak points of the report Finds shortcomings or errors in	 Expresses own opinion about topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	E 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 ☐ Contribution to the discussion		fight assistant, so we con- archive your partial grades – please do not bend
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Sco	IY	UU	IU				٥

Fig	ht (Round no.): Ro	om:	_Stage:	Problem no.: 16
Jur	or: K-240R3	Signatur	re:	and the second

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

A report should include:

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

An opposition should show that:

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

A review should show that:

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

	tion and <i>write it</i> in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find.
Rep.: (1260 € 2 € 5	Opp.: <u>BCLAPIL</u> 5	Rev.: GEZMANY 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols Appropriate models, conformity	☐ Finds shortcomings or errors in the report	Relevance of questions to both the 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		fight assistant, so the base archive your partial grades – please
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Scoring Guidelines	Fight (Round no.): 4 Room: C Stage: 1 Problem no.: 18 Juror: Round Copular Signature:) —
A report should include: • a presentation of the appropriate concepts, theorie application of appropriate mathematics • reasonable	s and principles of the problem • an explanation of the observed phenomena • an experimental technique to gather and record data (or demonstrate the phenomena if	

appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

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

A review should show that:

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

 Select each partial grade from each sec 	add to or deduct from the initial 5 points. tion and write it in the corresponding box. O questions were posed or not finding shortco	omings if there were none to find
Rep.: Singapore 5	Opp.: Blow 5	Rev.: Gerrany 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the 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		fight assistant, so we archive your partial grades – please
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised a	Final Grade: Reviewer fter IOC feedback and approved by EC on 2011-11-03

Scoring Guidelines	S	CO	ľ		n	g	G	U		d	e			n	e	5	
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Fight (Round no.):	Room: <u>6</u> , s	tage:	Problem no.: 16.
Juror: Zsussanen Ra	kont Signature:	Shi	Sit Del

| Final Grade: Reviewer | Con 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 opponent challenged the reporter's understanding of the presented concepts, theories 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:

Final Grade: Reporter

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *opponent* the reviewer appreciated the *important aspects* (especially the *controversial* ones) the reviewer's *personal opinion* was in evidence (*not* just *superficial observations*) such personal opinions were *informative*, *non-trivial* and demonstrated, where possible, the reviewer's *understanding* of *concepts*, *theories*, *principles and appropriate mathematics* used by the reporter and the opponent
- The grade for 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 n 	o questions were posed or not finding shortco	omings if there were none to find.
Rep.: 5	Opp.: 5	Rev.: 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 +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
POSITION AND AND AND AND AND AND AND AND AND AN		Contraction in the contraction of the contraction o
Reporter ±1	Opponent ±1 + 1	Reviewer ±1
Reporter ±1 Quality of experimental technique(s)	Opponent ±1 + 1 Response to the reporter's solution	Reviewer ±1 Provides a thorough review of report and discussion
Quality of experimental technique(s) Structure	Response to the reporter's	Provides a thorough review of report and discussion
Quality of experimental technique(s)	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and	Response to the reporter's solution Shows the strong and weak points of the report	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	 □ 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
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio. 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	 □ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed ☑ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent This sheet will be collected by the top we can scan it and
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate ☐ References, proper citations of	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	 □ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed ☑ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent □ 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 archive your partial grades - please
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate ☐ References, proper citations of ideas and input of others 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	□ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent

Final Grade: Opponent

Scoring Guidelines

Scoring Guide	IINAC		Stage: 1			
A report should include: • a presentation of the appropriate con application of appropriate mathematical appropriate) • linking of theoretical are complex ideas in an effective and under	s • reasonable experimental techni nd <i>experimental findings</i> to draw	que to gather and i	ecord data (or demonstrati	e the phenomena if		
An opposition should show the the opponent challenged the reporter appropriate mathematics presented • the opponent appreciated and highlighted the	's understanding of the presented ne opponent critiqued the experime	e ntal technique use	and <i>principles</i> • the opponed and questioned the <i>validi</i>	ent understood the <i>ty</i> of the <i>data</i> • the		
 the reviewer succeeded in giving an a important aspects (especially the control such personal opinions were informative principles and appropriate mathematics 	oversial ones) • the reviewer's person, non-trivial and demonstrated, when the control is the co	<i>onal opinion</i> was in nere possible, the re	evidence (not just superfic	cial observations) •		
The grade for each of the three tea The <i>reporter</i> , <i>opponent</i> and <i>review</i> Consider the following <i>suggestions</i> Select each partial grade from each Don't punish missing 'answers' who	ver each start with 5 points. Is to add to or deduct from the in In section and write it in the corre	nitial <i>5 points</i> . esponding box.				
Rep.: Sinc more 5	Opp.: BELAR	5	Rev.: GERMA	5		
hysics ±3 2	Physics ±3	2	Physics ±3	1,5		
Correct and relevant physics	☑ Correct and relevar					
Scientific approach Scientific approach			☑ Scientific approach			
Validity of conclusions	,			☐ Validity of conclusions		
I ACCUPATA ANGUANG	Accurate analysis		I T			

Physics ±3

- Correct and relevant physics
- ☐ Scientific approach

Rep.: SiNO MORE

- ✓ Validity of conclusions
- ☐ Accurate answers

Presentation +1

- Clear and understandable
- Appropriate manner
- ☐ Overall impression

Reporter ±1

- Quality of experimental technique(s)
- ☐ Structure
- Explanation of formulae and symbols
- ☐ Appropriate models, conformity of dimensions
- ☐ Slides, on-site experiments, audio, video, as appropriate
- References, proper citations of ideas and input of others
- ☐ Novelty of the report

Final Grade: Reporter

Contribution to the discussion

Phy

- D (
- \mathbb{Z}
- [] \
- ☐ Accurate answers

Presentation ±1

- Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Opponent ±1

0,5

- ☐ Response to the reporter's solution
- Shows the strong and weak points of the report
- Finds shortcomings or errors in the report
- ☐ Relevance of the questions
- Contribution to the discussion

□ Accurate answers

Presentation ±1

Clear and understandable

- ☐ Appropriate manner
- ☐ Overall impression

Reviewer ±1



- Provides a thorough review of report and discussion
- Expresses own opinion about topics presented or discussed
- Relevance of questions to both the reporter and the opponent
- Draws attention to points missed by the reporter or the opponent

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

do not bend

Final Grade: Reviewer

Final Grade: Opponent

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

Scoring (Guidelines	Fight (Ro	ound no.):	_Room:	C	Stage: _	1	Problem no.:	16
		Juror:	Lobysh	タ √	Signature	e:		MIS)
			/						-

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

An opposition should show that:

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

A review should show that:

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

 The reporter, opponent and reviewer e Consider the following suggestions to e Select each partial grade from each sec 	consists of a partial grade for <i>physics</i> , <i>present</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . etion and <i>write it</i> in the corresponding box. so questions were posed or not finding shorter. Opp.: Beauty 5				
Physics ±3	Physics ±3 +2	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 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1			
Reporter ±1	Opponent ±1	Reviewer ±1			
Quality of experimental technique(s) Structure	Response to the reporter's solution Shows the strong and weak points	Provides a thorough review of report and discussion Expresses own opinion about			
Explanation of formulae and symbols	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent			
 Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate 	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent			
☐ References, proper citations of ideas and input of others ☐ Novelty of the report		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades — please			
Contribution to the discussion		do not bend			

Final Grade: Reporter

Final Grade: Opponent

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