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Cooring Carialalia	Fight (Round no.): 2 Roor	n: D Stage: Problem no.: 2				
Scoring Guidelin	es Juror: Alan Allinson	_ Signature:				
application of appropriate mathematics • reas	sonable experimental technique to gather and serimental findings to draw suitable conclusions.	explanation of the observed phenomena • an record data (or demonstrate the phenomena if ons • an attempt to communicate difficult or				
An opposition should show that: • the opponent challenged the reporter's under appropriate mathematics presented • the opponent appreciated and highlighted the street	onent critiqued the experimental technique use	and <i>principles</i> • the opponent understood the data • the				
A review should show that: • the reviewer succeeded in giving an objective important aspects (especially the controversian such personal opinions were informative, non-principles and appropriate mathematics used by	of ones) • the reviewer's personal opinion was intrivial and demonstrated, where possible, the results.	n evidence (not just superficial observations) •				
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sections 	dd to or deduct from the initial 5 points.					
	Opp.: NZ Howell Fu 5	Rev.: Sweden Peter Wehlin 5				
Physics ±3	Physics ±3	Physics ±3 +2				
☐ 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 7 Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression				
Reporter ±1	Opponent ±1	Reviewer ±1				
hamman	Response to the reporter's solution	Provides a thorough review of				
☐ Structure	☐ Shows the strong and weak points	report and discussion 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				
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	LJ 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				
Novelty of the report		fight assistant, so we can scan a archive your partial grades – please				
Contribution to the discussion		do not bend				
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03				

Scoring	Gui	del	ines
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Fight (Round no.):	Room:	Stag	e: 1	Problem no.:	2
Juror: Carsten	Gecheler	Signature:	6	2064	

Α	report	should	include:
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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 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 on

propries and appropriate mathematics ase	d by the reporter and the opponent	
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each sec 	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> . Ition and <i>write it</i> in the corresponding box. To questions were posed or not finding shortco	
Rep.: Thailand 5	Opp.: New Zealand 5	Rev.: Sweden 5
Physics ±3	Physics ±3 +1	Physics ±3 +2
Correct and relevant physics	O Correct and relevant physics	☐ Correct and relevant 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 +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	,
Explanation of formulae and symbols	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	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
Manale et la		fight assistant, by the

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

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archive your partial grades - please

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	Fight (Round no.): Roon	n: D Stage: 1 Problem no.:
Scoring Guidelin	1es Juror: Ilawa Hailesch	Signature: <u>La Mal</u>
application of appropriate mathematics • re	ts, theories and principles of the problem • an e easonable experimental technique to gather and a experimental findings to draw suitable conclusion dable 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 st	nderstanding of the presented concepts, theories pponent critiqued the experimental technique use rengths and weaknesses of the report	and <i>principles</i> • the opponent understood the data • the
important aspects (especially the controvers	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was it in-trivial and demonstrated, where possible, the red by the reporter and the opponent	evidence (nat just superficial observations) .
 The reporter, opponent and reviewer of the Consider the following suggestions to select each partial grade from each second 	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points.</i> add to or <i>deduct</i> from the initial <i>5 points.</i> ction and <i>write it</i> in the corresponding box. to questions were posed or not finding shortco	
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	☐ 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□ Slides, on-site experiments, audio,	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
video, as appropriate References, proper citations of ideas and input of others	3.2 3.2 3.333.31011	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 do not bend

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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Fight (Round no.): 2 Room:	Stage:	Problem	no.: 2
Juror: Tsussacus Rapearts	Signature:	Thekont	20

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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 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 n 	to 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
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	🖾 Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Daviewer +1
	Obbonent 77	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
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
technique(s) Structure Explanation of formulae and	Response to the reporter's	Provides a thorough review of report and discussion
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity	Response to the reporter's solution Shows the strong and weak points	Provides a thorough review of report and discussion Expresses own opinion about
technique(s) Structure Explanation of formulae and	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 reporter and the opponent Draws attention to points missed
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
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
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	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
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

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



		Fight (Round r	no.): <u></u>	_Room:	Stage: _	Proble	em no
Scoring	Guidelines	Juror: Roll	Capade	V Signat	ure:	CA_	anger or a second

Scoring Guiaeiii	nes Juror: Rou	copuder	_ Signature:				
A report should include: • a presentation of the appropriate conception application of appropriate mathematics • repropriate) • linking of theoretical and examplex ideas in an effective and understand	easonable experimental techniq l e xperimental findings to draw s	ue to <i>gather</i> and	record data (or demonstrate the	pheno mena if			
An opposition should show that: • the opponent challenged the reporter's us appropriate mathematics presented • the opponent appreciated and highlighted the st	nderstanding of the presented co pponent critiqued the experimen	ntal technique use	and <i>principles</i> • the opponent uned and questioned the <i>validity</i> of the contract of the cont	nderstood the 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>perso</i> on-trivial and demonstrated, whe	<i>nal opinion</i> was i ere possible, the r	n evidence (not just superficial of	servations) •			
 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 re 	each start with 5 points. add to or deduct from the init ction and write it in the corres	tial <i>5 points</i> . sponding box.					
Rep.: Thorbard Reera 5	Opp.: You Edand	i e	Rev.: Sweden Peter Wheliu	5			
Physics ±3	Physics ±3	6	Physics ±3	6			
☐ Correct and relevant physics	☐ Correct and relevant	physics	☐ Correct and relevant	physics			
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach				
☐ Validity of conclusions	☐ Validity of conclusion	ns	☐ Validity of conclusions				
Accurate answers	☐ Accurate answers		☐ Accurate answers				
Presentation ±1	Presentation ±1		Presentation ±1	1			
☐ Clear and understandable	Clear and understand	dable	☐ Clear and understand	able			
Appropriate manner	Appropriate manner		☐ Appropriate manner				
☐ Overall impression	Overall impression		Overall impression				
Reporter ±1	Opponent ±1	0	Reviewer ±1	0			
Quality of experimental technique(s)	Response to the reposolution	orter's	Provides a thorough r report and discussion	eview of			
Structure Structure	☐ Shows the strong and	d weak points	Expresses own opinio	n about			
Explanation of formulae and symbols	of the report Finds shortcomings o	r errors in	topics presented or discussed Relevance of questions to both the				
Appropriate models, conformity of dimensions	the report Relevance of the que	stions	reporter and the opportunity of the porture of the	ints missed			
Slides, on-site experiments, audio, video, as appropriate	Contribution to the d		by the reporter or the	opponent			
References, proper citations of ideas and input of others			This sheet will be collect	ted by the scan it and			

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Final Grade: Opponent

☐ Novelty of the report

Final Grade: Reporter

☐ Contribution to the discussion





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Fight (Round no.): Room	: Stage:	_ Problem no.:
Juror: Dina I Jak	Signature:	zaoli+

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 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, present</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . Ition and <i>write it</i> in the corresponding box. To questions were posed or not finding shortco				
Rep.: Thailand 5	Opp.: New Tealand 5 Howell Fu 5	Rev.: Sweden 5 Petter wehlin			
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	Clear and understandable	Elear and understandable			
Appropriate manner	Appropriate manner	Appropriate manner			
Overall impression	U 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				
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 be archive your partial grades — please			
Contribution to the discussion		do not bend			
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer			

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Rep.: NZ

Physics ±3

☐ Correct and relevant physics Scientific approach yes hat not

Clear and understandable Appropriate manner

☐ Accurate answers

Presentation ±1

Overall impression

☐ Quality of experimental technique(s)

Slides, on-site experiments, audio,

Reporter ±1

✓ Structure

7 References, proper citations of ideas and input of others

☐ Contribution to the discussion

	•					
Scoring Guideli	Fight (Round no.): Roor Nes Juror:ACANACLINS	n: D Stage: Z Problem no.: 16				
	Juror: //C/JA /F CC//VX	Mignature: Mu Att				
application of appropriate mathematics • r	ets, theories and principles of the problem • an a easonable experimental technique to gather and experimental findings to draw suitable conclusion dable manner	record data (or demonstrate the phenomena if				
An opposition should show that:						
 the opponent challenged the reporter's u. appropriate mathematics presented • the opponent appreciated and highlighted the st 	nderstanding of the presented concepts, theories pponent critiqued the experimental technique use trengths and weaknesses of the report	and <i>principles</i> • the opponent understood the data • the data • the				
important aspects (especially the controver.	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in the trivial and demonstrated, where possible, the red by the reporter and the opponent	revidence (not just superficial observations)				
The <i>reporter</i> , <i>opponent</i> and <i>reviewer</i> Consider the following <i>suggestions</i> to Select each partial grade from each see Don't punish missing 'answers' when r	add to or deduct from the initial 5 points. ction and write it in the corresponding box. so questions were posed or not finding shorter.	omings if there were none to find.				
Rep.: NZ Matthew H 5	Opp.: Sneder Fredrick Sjovall 5	Rev.: Thankorn 5				
hysics ±3	Physics ±3	Physics ±3				
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics				
Scientific approach Yes hat not he good Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions	☐ Scientific approach				
Accurate answers	Accurate answers	☐ Validity of conclusions ☐ Accurate answers				
resentation ±1	Presentation ±1	Presentation ±1				
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable				
Appropriate manner	☐ Appropriate manner	Appropriate manner				
Y 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, 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				
Novelty of the report		This sheet will be con- fight assistant, so we can scan it and archive your partial grades – please				

Final Grade: Reporter

☐ Novelty of the report

Final Grade: Opponent

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

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						STATE OF THE PARTY.		-	-	-		-4071	***			-	-	4000

Fight (Round no.):	2Room:	Stage	e:2	_ Problem no.:	16
Juror: Carster	Gecheles	ignature:		celu	

• a presentation of 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 appreciated and highlighted the st	pponent <i>critiqued</i> the <i>experimental technique</i> use <i>rengths and weaknesses</i> of the report	d and questioned the <i>validity</i> of the <i>data</i> • the					
important aspects (especially the controvers	stive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in surfaced and demonstrated, where possible, the red 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 <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> . ation and <i>write it</i> in the corresponding box. so questions were posed or not finding shortcomes.						
Rep.: New Zealand (Matthews Harrey) 5	Opp.: Sweden 5	Rev.: Thailand 5					
Physics ±3	Physics ±3 +1	Physics ±3 +1					
Correct and relevant physics	☑ Correct and relevant 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 +1	Presentation ±1					
Clear and understandable	Clear and understandable	Clear and understandable					
Appropriate manner	Appropriate manner						
Overall impression	☐ Overall impression	Overall impression					
Reporter ±1	Opponent ±1	Reviewer ±1 +015					
Quality of 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					
n Blanck - Edd		fight assistant, so the					

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.):	Room: _	/) Stage	: 2	Problem no.:	
171	-1	Vic. 5	- 1		
Juror:/ late of		Signature:	XX	<u> Moll</u>	

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

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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

bon't parish missing answers, when no questions were posed of 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 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: Opponent

Fight (Round no.): 2 Room:		Stage: 2 Problem no.: 16
Juror: Zsassaraa Rajerrit	Signature:	Theilant 21

A report 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 nunich missing (answers when no aus

- Don't punish missing answers when h	o questions were posed or not finding shortco	omings 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	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols	☐ Finds shortcomings or errors in 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, so we are archive your partial grades – please
Contribution to the discussion		do not bend
generalmonary production and an activities and activities activities activities activities and activities activities activities activities activities and activities ac	pm-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	

5	CO	r	n	g	G	U	d	e			C	S	,
				5000 E									

Fight (Round no.): <u></u>	Room:	D	Stage:	2	Problem n	0.: 16
Juror: Rolf	Capu	PL	Signatur	e:	<u></u>	A	

• a presentation of 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 <i>informative</i> , no principles and appropriate mathematics use	on-trivial and demonstrated, where possible, the re d by the reporter and the opponent	viewer's <i>understanding</i> of <i>concepts</i> , <i>theories</i> ,
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se 	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.: You toland 5 Hothe Koway 5 Physics ±3	Opp.: Surder Fredn't Sjorall Physics ±3	Rev.: Thankand 5 Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about
☑ Explanation of formulae and	of the report	topics presented or discussed
symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the
Appropriate models, conformity of dimensions	·	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 are fight assistant, so we are archive your partial grades — please
☐ Contribution to the discussion		do not bend



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Fight (Round no.): Room:	Stage: 9 Problem no.: 16
Juror: Ding Igadi	Signature:

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 reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each sec 	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> . ction and <i>write it</i> in the corresponding box. to questions were posed or not finding shortco	
Rep.: <u>new Zealand</u> 5 Matthew 5	Opp.: Sweden 5 fredrik	Rev.: Thailand 5 Thanakorn
Physics ±3	Physics ±3 +029	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant 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 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		fight assistant, so we are fight assistant, so we are archive your partial grades – please
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Crades Basissan

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				(Book)										

Final Grade: Reporter

	Fight (Round no.): Roon	n: Stage: 3 Problem no.:
Scoring Guideli		Signature: Ale Alle
application of appropriate mathematics •	epts, theories and principles of the problem • an experimental technique to gather and experimental findings to draw suitable conclusion and able manner	record data (or demonstrate the phenomena if
An opposition should show that • the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the	understanding of the presented concepts, theories opponent critiqued the experimental technique use	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 controve	iective summary of the performances the reporter ersial ones) • the reviewer's personal opinion was in non-trivial and demonstrated, where possible, the re	n evidence (not just superficial observations) •
 The grade for each of the three team The reporter, opponent and reviewe Consider the following suggestions t 	sed by the reporter and the opponent see the reporter and the reporter and the opponent see the reporter and the reporter a	
	Opp.: Thailand Angenmalee 5	Rev.: NZ Jesse Zhang 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 Clear and understandable	Presentation ±1 ☐ Clear and understandable	Presentation ±1
☐ Appropriate manner ☐ Overall impression	☐ Overall impression	☐ 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	☐ Shows the strong and weak points of the report ☐ Finds shortcomings or errors in	Expresses own opinion about topics presented or discussed
Appropriate models, conformity of dimensions	the report Relevance of the questions	Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
 Slides, on-site experiments, audio video, as appropriate References, proper citations of ideas and input of others Novelty of the report 	Contribution to the discussion	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades — please
Contribution to the discussion		do not bend

Final Grade: Opponent 5

Final Grade: Reviewer

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	Fight (Round no.): 2 Roon	n: Stage: 3 Problem no.: 1
Scoring Guidelii	1es Juror: Carsten Gecheler	Signature: Jewy
application of appropriate mathematics • re	ts, theories and principles of the problem • an e easonable experimental technique to gather and a experimental findings to draw suitable conclusion dable 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 st	nderstanding of the presented concepts, theories pponent 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	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in the trivial and demonstrated, where possible, the red by the reporter and the opponent	n evidence (not just superficial observations) •
The <i>reporter, opponent</i> and <i>reviewer</i> of Consider the following <i>suggestions</i> to Select each partial grade from each sec	consists of a partial grade for <i>physics, presen</i> t each <i>start with 5 points.</i> add to or <i>deduct</i> from the initial <i>5 points</i> . ction and write it in the corresponding box. to questions were posed or not finding shorter	
Rep.: Sweden Maria Anghol 5	Opp.: Thailand 5	Rev.: New Zealand 5
hysics ±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
resentation ±1	Presentation ±1	Presentation ±1 +1
Clear and understandable	E Clear and understandable	☐ Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner

Presentation ±1

Accurate answers

☐ Scientific approach

Physics ±3

☐ Clear and understandable

Rep.: Sweden Maria Anghol

☐ Correct and relevant physics

Appropriate manner

Overall impression

Reporter ±1

0

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

P

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: Reviewer

Final Grade: Opponent

Fight (Round no.): Room: Stage: Problem no.:
Juror: House Hasseoff Signature: La Hall
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 all findings to draw suitable conclusions • an attempt to communicate difficult or ner

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

A report should include:

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

An opposition should show that:

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

boll t punish missing answers when n		
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		report and discussion
Li structure	☐ Shows the strong and weak points	winnesses.
☐ Explanation of formulae and	Shows the strong and weak points of the report	phonony
Explanation of formulae and symbols	☐ Shows the strong and weak points of the report ☐ Finds shortcomings or errors in the report	Expresses own opinion about
☐ Explanation of formulae and	of the report Finds shortcomings or errors in	 Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed
 Explanation of formulae and symbols Appropriate models, conformity 	Finds shortcomings or errors in the report	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent
 Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio. 	☐ Finds shortcomings or errors in the report ☐ Relevance of the questions	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent This sheet will be collected by the
 Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate 	☐ Finds shortcomings or errors in the report ☐ Relevance of the questions	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
 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 	☐ Finds shortcomings or errors in the report ☐ Relevance of the questions	 □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent

Final Grade: Opponent

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

Juror 2 susseum Re Earth Signature: Skylant 2 P

A report 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.: 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 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	☐ 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 do archive your partial grades – please
Contribution to the discussion		do not bend
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Final Grade: Opponent

Final Grade: Reviewer

Revised after IOC feedback and approved by EC on 2011

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Fight (Round no.):	Room:	Stage:	Problem no.:	:_{
Juror: RA Capider		Signature:	Cal	

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.

 Select each partial grade from each sec 	add to or deduct from the initial 5 points. Ition and write it in the corresponding box. O questions were posed or not finding shortco	omings if there were none to find.
Rep.: Sweden Moria Atngd Physics ±3 5	Opp.: That I on d Aunquiralle Physics ±3 5	Rev.: New Edond Jesse Drawy 5 Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and	of the report	topics presented or discussed
symbols	Finds shortcomings or errors in the report	☐ Relevance of questions to both the
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	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 archive your partial grades – please
Contribution to the discussion		do not bend

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Fight (Round no.): R	Room: D Stage: 3 P	roblem no.:
Juror: Dina stad	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

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 n 	o questions were posed of not finding shorter	omings in there were none to find.
Rep.: Sweden 5	Opp.: Theiland 5	Rev.: New goaland 5
Physics ±3	Aing sumalee -2.25	Jesse
_ / _	F 11 4 31 C 3 T 2	Physics ±3
Correct and relevant physics Scientific approach	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	Elear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	☐ Overall impression	Overall impression
	printerior de la constantina del constantina de la constantina del constantina de la	Province and the second
Reporter ±1	Opponent ±1	Reviewer ±1 -0.25
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
Quality of experimental	Response to the reporter's solution Shows the strong and weak points	Provides a thorough review of report and discussion Expresses own opinion about
☐ 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
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols	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 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
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed
☐ 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
 □ 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
☐ 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
☐ 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

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