Scoring Guidelines	Fight (Round no.): 1+ Room: Stage: Problem no.:						
A report should include:  • a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an 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							
opposite opposite and highlighted the strengths till	u 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.

<ul> <li>Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.</li> </ul>							
Rep.: Australia 5	Opp.: Switzesland 5	Rev.: Poland. 5					
Physics ±3	Physics ±3	Physics ±3 +(					
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics					
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach					
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions					
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers					
Presentation ±1	Presentation ±1	Presentation ±1					
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable					
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner					
Overall impression	☐ Overall impression	☐ Overall impression					
Reporter ±1 + ½	Opponent ±1	Reviewer ±1					
Quality of 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 con- archive your partial grades – please					
	3						
☐ Contribution to the discussion ☐		do not bend					

Final Grade: Opponent

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						22 V	and dim	20 :		2 S	Control of the last

Physics ±3

☐ Validity of conclusions

Presentation ±1

Appropriate manner

☐ Explanation of formulae and

☐ Appropriate models, conformity

☐ Slides, on-site experiments, audio,

References, proper citations of ideas and input of others

☐ Contribution to the discussion

Overall impression

☐ Novelty of the report

Reporter ±1

☐ Structure

Scoring Guideli		m:k Stage: Problem no.: MSignature: Stock
application of appropriate mathematics • r	ets, theories and principles of the problem • an easonable experimental technique to gather and experimental findings to draw suitable conclusions 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	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 controvers	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in the intrivial 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> Consider the following <i>suggestions</i> to  Select each partial grade from each set	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.  no questions were posed or not finding shortc	
Rep.: Australia 5	Opp.: Siribeland 5	Rev.: Poland 5
Chysics ±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
resentation ±1  Clear and understandable $to fast$ Appropriate manner  Overall impression	Presentation ±1	Presentation ±1  ☐ Clear and understandable ☐ Appropriate manner ☐ 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 of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in	Relevance of questions to both the
Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent
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		This sheet will be collected by the
ideas and input of others  Novelty of the report		This sheet will be be- fight assistant, so we can scan it and archive your partial grades – please

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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Scaring Guidalinas	Fight (Round no.)	: <del> R</del> oom:	Stage:	Problem no.:
Scoring Guidelines	Juror: 354	er Dust	Signature:	Dunt

Д	report	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.

<ul> <li>Select each partial grade from each section and write it in the corresponding box.</li> <li>Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.</li> </ul>							
Rep.: Australia 5	Opp.: 5 5	Rev.: f. Land 5					
Physics ±3	Physics ±3	Physics ±3 +1,5					
☐ Correct and relevant physics ☐ Scientific approach	Correct and relevant physics	Correct and relevant physics					
	E Scientific approach	☐ Scientific approach					
tandity of correlations	☐ Validity of conclusions	☐ Validity of conclusions					
△ Accurate answers	Accurate answers	Accurate answers					
Presentation ±1 -91	Presentation ±1	Presentation ±1 + 45					
<ul><li>Clear and understandable</li></ul>		Clear and understandable					
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner					
Overall impression	Overall impression	☐ Overall impression					
Reporter ±1	Opponent ±1 +us	Reviewer ±1 + 475					
<ul><li>Quality of experimental technique(s)</li></ul>	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, 50 We are archive your partial grades – please					
Contribution to the discussion		do not bend					

Final Grade: Opponent

Scoring Guidelir	Fight (Round no.): 4 Room  Juror: SIEN-CHUNG K						
application of appropriate mathematics • re	ts, theories and principles of the problem • an en en assonable experimental technique to gather and resperimental findings to draw suitable conclusionable manner	ecord data (or demonstrate the phenomena if					
An opposition should show that: • the opponent challenged the reporter's un appropriate mathematics presented • the op opponent appreciated and highlighted the str	derstanding of the presented concepts, theories a oponent critiqued the experimental technique user rengths and weaknesses of the report	and <i>principles</i> • the opponent understood the dand questioned the <i>validity</i> of the <i>data</i> • the					
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							
<ul> <li>The reporter, opponent and reviewer e</li> <li>Consider the following suggestions to a</li> <li>Select each partial grade from each sections.</li> </ul>	consists of a partial grade for <i>physics, present</i> each <i>start with 5 points</i> .  and to or <i>deduct</i> from the initial <i>5 points</i> .  tion and <i>write it</i> in the corresponding box.  to questions were posed or not finding shortco						
Rep.: Australia 5	Opp.: Switzerland 5	Rev.: Poland 5					
Physics ±3	Physics ±3	Physics ±3					
Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics					
Scientific approach	☐ Scientific approach	☐ Scientific approach					
☑ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions					
Accurate answers	☐ Accurate answers	Accurate answers					
Presentation ±1	Presentation ±1 +0.2	Presentation ±1 +0.2					
и прагали understandable	Classical and a late						

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

☐ Contribution to the discussion

Final Grade: Reporter

Clear and understandable

☐ Appropriate manner

Overall impression

# Opponent ±1

Response to the reporter's solution

☐ Shows the strong and weak points of the report

Finds shortcomings or errors in+ the report

Relevance of the questions

Contribution to the discussion

☐ 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

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Final Grade: Opponent Final Grade: Reviewer

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Scoring Guideli		Fight (Round r	no.):	Roor	n: <u>                                    </u>	e: <u>/</u>	_ Problem no	0.:
scoring Gaideni	ies	Juror: Tu	Chen	ghou	_ Signature:	Tu	cheng	hou
A report should include:  • a presentation of the appropriate conception application of appropriate mathematics • repropriate) • linking of theoretical and excomplex ideas in an effective and understant	easonable <b>e</b> Experimento	xperimental tech I findings to dra	nique to	gather and .	record data (or de	monstrate	e the phenom	nena if
An opposition should show that: • the opponent challenged the reporter's unappropriate mathematics presented • the opponent appreciated and highlighted the st	<i>nderstandin</i> pponent <i>crit</i>	iqued the experir	nental te	chnique use	and <i>principles</i> • t d and questioned	he oppone the <i>validi</i> i	ent understoc	od 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	<i>sial</i> ones) ● : • <i>n-trivial</i> and	the reviewer's <i>pe</i> d demonstrated, v	<i>rsonal op</i> where po:	<i>inion</i> was in	r evidence (not in	st sunerfic	ial observation	ancla
<ul> <li>The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.</li> <li>The reporter, opponent and reviewer each start with 5 points.</li> <li>Consider the following suggestions to add to or deduct from the initial 5 points.</li> <li>Select each partial grade from each section and write it in the corresponding box.</li> <li>Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.</li> </ul>							Pale	
Rep.: Australia 5	Орр.	: Switzer	land	5	Rev.:	olan	<u>d</u>	5
Physics ±3	Physic	cs ±3		41	Physics ±3	8	Figure 1	+0.1
☐ Correct and relevant physics	1	rect and releva	ו ant phys	sics	l		ــــــا ant physics/	
☐ Scientific approach		Scientific approach			☐ Scientific			•
☐ Validity of conclusions	☐ Vali	Validity of conclusions			☐ Validity of conclusions			
☐ Accurate answers	☐ Acc	urate answers			☐ Accurate answers			
Presentation ±1	Prese	ntation ±1		æ	Presentat	ion ±1	1	0.5
Clear and understandable	☐ Clea	Clear and understandable			☐ Clear and understandable			
Appropriate manner	☐ App	Appropriate manner			☐ Appropriate manner			
Overall impression	│ □ Ove	rall impressior	1		Overall in	npressio	n	
Reporter ±1	Oppor	nent ±1		0	Reviewer	<b>±1</b>		0
Quality of experimental technique(s)	Respond	oonse to the re tion	eporter'	S	☐ Provides report an	a thorou	igh review o	of
☐ Structure	☐ Sho	ws the strong a	and wea	k points	☐ Expresse:	own on	inion abou	t
Explanation of formulae and symbols	Explanation of formulae and symbols			ors in	☐ Expresses own opinion about topics presented or discussed☐ Relevance of questions to both the			
Appropriate models, conformity of dimensions		report	uestion	r	reporter	and the o	opponent	
Slides, on-site experiments, audio, video, as appropriate	evance of the questions  Draws attention to po by the reporter or the			the oppon	ssed ent			
References, proper citations of ideas and input of others				and the second s		. 4 cm 161	collected by the can scan it is	
Novelty of the report				**************************************	fight assis archive y	tant, so w our partia	grades - ple	336

☐ Contribution to the discussion

Final Grade: Reporter

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

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Fight (Round no.):	Room: Kage: _	Problem no.:	
Juror: YE YEO	Signature:	The state of the s	

• a presentation of 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
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<ul><li>Select each partial grade from each sec</li><li>Don't punish missing 'answers' when n</li></ul>	ction and write it in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find.
Rep.:5	<b>Opp.:</b> 5	<b>Rev.:</b> 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 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 carry archive your partial grades – please
Contribution to the discussion		do not bend
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Final Grade: Opponent

Scoring Guidelines	5	CO	ri	n	q	G	U		d	e			n	e	5
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Room: K Stage: 2 Problem-no.:

# A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • 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.

<ul> <li>The reporter, opponent and reviewer</li> </ul>	each start with 5 moints	, ,
<ul> <li>Consider the following suggestions to a</li> </ul>	add to or deduct from the initial 5 points.	
Select each partial grade from each sec	ction and write it in the corresponding box.	
<ul> <li>Don't punish missing 'answers' when n</li> </ul>	o questions were posed or not finding shortc	omings if there were none to find
Rep.: Suntreland 5	Opp.: Poland 5	Rev.: Australia 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 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 con- archive your partial grades — please
Contribution to the discussion		do not bend
		gional and control con





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Fight (Round no.): 4	Room: _	<u> </u>	Stage: _	2	Problem no.:	6
Juror: Kiesis Stania	MAUN S	ignature	: //	/	1/ _	

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to 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*.

<ul> <li>Select each partial grade from each sec</li> </ul>	each start with 5 points. 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.: Switzeland 5	Opp.: Poland 5	Rev.: Australia 5
Physics ±3	Physics ±3	Physics ±3 +2
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 **O
☐ 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
<ul><li>Quality of experimental technique(s)</li></ul>	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	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
0		

Final Grade: Opponent

Fight (Round no.): _	<u>4</u> Room:	K Stage: _	2_ Problem no.:6	
Juror: Thraen	Durst	Signature:	Dungt	

• a presentation of 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.

	o questions were posed or not finding shortco	omings if there were none to find.
<b>Rep.:</b> Swiss 5	Opp.: Poland 5	Rev.: Australia 5
Physics ±3  [-] Correct and relevant physics	Physics ±3 +10	Physics ±3
<ul><li>☐ Correct and relevant physics</li><li>☐ Scientific approach</li><li>☐ Validity of conclusions</li><li>☐ Accurate answers</li></ul>	<ul> <li>☑ Correct and relevant physics</li> <li>☑ Scientific approach</li> <li>☑ Validity of conclusions</li> <li>☑ Accurate answers</li> </ul>	<ul> <li>☑ Correct and relevant physics</li> <li>☐ Scientific approach</li> <li>☐ Validity of conclusions</li> <li>☑ Accurate answers</li> </ul>
Presentation ±1 +02	Presentation ±1	Presentation ±1 $+v_{i}b$
<ul><li>Clear and understandable</li><li>Appropriate manner</li><li>Overall impression</li></ul>	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	<ul><li>☐ Clear and understandable</li><li>☐ Appropriate manner</li><li>☐ Overall impression</li></ul>
Reporter ±1 $+0$ , L	Opponent ±1	Reviewer ±1 +0,6
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>□ Appropriate models, conformity of dimensions</li> <li>□ Slides, on-site experiments audio</li> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
video, as appropriate	☐ Contribution to the discussion	•
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		archive your partial grades
Contribution to the discussion	ou dos interests sources after a sourcement of another contraction of the contraction of	do not bend
and the contract of the contra		

Final Grade: Opponent

Scoring Guidelir		om: <u>k</u> Stage: 2 Problem no.: 6
application of appropriate mathematics • re	asonable experimental technique to gather an experimental findings to draw suitable conclus	explanation of the observed phenomena • and record data (or demonstrate the phenomena if ions • an attempt to communicate difficult or
An opposition should show that: • the opponent challenged the reporter's un appropriate mathematics presented • the opponent appreciated and highlighted the str	ponent <i>critiqued</i> the <i>experimental technique</i> u	s and principles • the opponent understood the sed and questioned the validity of the data • the
important aspects (especially the controvers	ial ones) • the reviewer's personal opinion was n-trivial and demonstrated, where possible, the	r and opponent • the reviewer appreciated the in evidence (not just superficial observations) • reviewer's understanding of concepts, theories,
<ul> <li>The reporter, opponent and reviewer e</li> <li>Consider the following suggestions to c</li> <li>Select each partial grade from each sec</li> </ul>	consists of a partial grade for <i>physics</i> , <i>prese</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 short	
Rep.: Switzerland 5	Opp.: Poland 5	Rev.: Australia 5
Physics ±3	Physics ±3 to.6	Physics ±3
Correct and relevant physics +	☐ Correct and relevant physics	☐ Correct and relevant physics
$oxed{eta}$ 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 +03	Reviewer ±1 +/.2
<ul><li>Quality of experimental technique(s)</li></ul>	Response to the reporter's solution	Provides a thorough review of report and discussion

Final Grade: Reporter

Explanation of formulae and

Appropriate models, conformity of dimensions

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

References, proper citations of ideas and input of others

Contribution to the discussion

☐ Novelty of the report

☐ Structure

symbols

Final Grade: Opponent

Finds shortcomings or errors in the report

Relevance of the questions

Contribution to the discussion

Shows the strong and weak points Expresses own opinion about topics presented or discussed

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

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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

Scoring Guideli	Fight (Round no.): 4 Room	m:k_ Stage:2_ Problem no.:
Journal Conden	Juror: 14 Ch-enghor	Signature: Tu cherghon
A report should include:	<u>U</u>	
application of appropriate mathematics •	pts, 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 nhenomena if
An opposition should show that • the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the second	understanding of the presented concepts, theories opponent 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
such personal opinions were <i>informative</i> , n	ective summary of the performances the reporter rsial ones) • the reviewer's personal opinion was in con-trivial and demonstrated, where possible, the r	n evidence (not just superficial observations)
<ul> <li>The reporter, opponent and reviewer</li> <li>Consider the following suggestions to</li> <li>Select each partial grade from each se</li> </ul>	s consists of a partial grade for <i>physics</i> , <i>presen</i> reach <i>start with 5 points</i> .  a <i>add</i> to or <i>deduct</i> from the initial <i>5 points</i> .  action and <i>write it</i> in the corresponding box.  no questions were posed or not finding shorto	
Physics ±3	Physics ±3 +1	Physics ±3 + t
<ul><li>☐ Correct and relevant physics</li><li>☐ Scientific approach</li></ul>	☐ Correct and relevant physics ☐ Scientific approach	☐ Correct and relevant physics
☐ Validity of conclusions	☐ Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 -0.5	Presentation ±1 -as
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
<ul><li>☐ Appropriate manner</li><li>☐ Overall impression</li></ul>	☐ Overall impression	Appropriate manner
	Coveran impression	U Overall impression
Reporter ±1	Opponent ±1 -0.j	Reviewer ±1
U Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in	Relevance of questions to both the
Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	1	by the reporter or the opponent

References, proper citations of ideas and input of others ☐ Novelty of the report

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☐ Contribution to the discussion

<i>6</i>		rignt (Round no
Scoring	Guidelines	luror: VF

Fight (Round no	ı.): <u>4</u>	_Room:	k_	Stage:	2	Problem no.:	6
Juror: <u>E</u>	YEO		Signatur	e:	J	W.	

• a presentation of 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

	, and the opposition	
<ul> <li>The reporter, opponent and reviewer</li> <li>Consider the following suggestions to</li> <li>Select each partial grade from each ser</li> </ul>	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 shortc	
Rep.:	<b>Opp.:</b> 5	<b>Rev.:</b> 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
D Appropriate manner we share	☐ Appropriate manner	☐ Appropriate manner
Overall impression W W	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
Explanation of formulae and symbols	Finds shortcomings or errors in	topics presented or discussed  Relevance of questions to both the
Appropriate models, conformity of dimensions	the report	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, 30 we are fight assistant, 30 we are fight assistant, 30 we are fight assistant assistant assistant, 30 we are fight as a fight assistant as a fight a
☐ Contribution to the discussion		do not bend
4		7

Final Grade: Reporter

Final Grade: Opponent

Final Grade: Reviewer

Scoring	Guidelines	Juror: Francisco	 Stage: 3	Problem no.:

• a presentation of 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.

<ul> <li>Select each partial grade from each sec</li> </ul>	each start with 5 points. Indd to or deduct from the initial 5 points. Ition and write it in the corresponding box. In questions were posed or not finding shorted	omings if there were none to find.
Rep.: Poland 5	Opp.: Australia 5	Rev.: Switzerland 5
Physics $\pm 3$ $\pm \frac{1}{2}$	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 + /
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about
☐ Explanation of formulae and	of the report	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		archive your partial glades
Contribution to the discussion		do not bend
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Final Grade: Reporter

Final Grade: Opponent

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J	6	Ų	H	Ø	ø	8		G		M		Ø	M	H			2	
							Sandill .		 		_		~	_	-	-	- Ago-	

Fight (Round no.): 4 Room	ı:k Stage: Problem no.: _	
Juror: Wie STEN STADER MANN	Signature: Mat Start	

• a presentation of 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

<ul> <li>The reporter, opponent and reviewer e</li> <li>Consider the following suggestions to e</li> <li>Select each partial grade from each sec</li> </ul>	each start with 5 points.  add to or deduct from the initial 5 points.  Ition and write it in the corresponding box.  It on questions were posed or not finding shortco	, , , , , , , , , , , , , , , , , , , ,
Rep.: Polanol 5	Opp.: Australie 5	Rev.: Sisitzeland 5
Physics ±3	Physics ±3 + \	Physics $\pm 3$ $+ 0.7$
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	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	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 con archive your partial grades — please
Contribution to the discussion—	untervientes han electro a construction de la latera un menuente a colore de la	do not bend
	· .	(

Final Grade: Reporter

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

Cooring Childelines	Fight (Round no.): _	<u>4</u> Room:	Stage:	
Scoring Guidelines	Juror: Torgen	Dust	Signature:	Dunt

• a presentation of 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.

<ul> <li>Select each partial grade from each sec</li> </ul>	add to or deduct from the initial 5 points. Ition and write it in the corresponding box. In questions were posed or not finding shortc	omings if there were none to find.
Rep.: Poland 5	Opp.: Australia 5	<b>Rev.:</b> Swiss 5
Physics ±3 +1,5	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0,5	Presentation ±1 +92	Presentation $\pm 1$ $\pm \hat{v}_{i} $
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 + 0, 2	Opponent ±1 +43	Reviewer $\pm 1$ $+0$
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	☐ Expresses own opinion about
☐ Explanation of formulae and	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
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 consume fight assistant assis
☑ Contribution to the discussion		do not bend

Final Grade: Opponent

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Fight (Round no.):	Room:k	Stage: _	2Problem no.:	
Juror: - Sien-chung	Signa:	ure: ///	ien-chung	Kap

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

A	rep	ort	should	d inc	lude:
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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:

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.

<ul> <li>Don't punish missing 'answers' when n</li> </ul>	o questions were posed or not finding shortco	omings if there were none to find.
Rep.: Poland 5	Opp.: Australia 5	Rev.: Switzerland 5
Physics ±3	Physics ±3	Physics ±3
$\square$ Correct and relevant physics $-$	☐ Correct and relevant physics +	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers +		Accurate answers
Presentation ±1 +0.3	Presentation ±1 +0.6	Presentation ±1
☐ Clear and understandable +	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression +		Overall impression
	P-10-10-10-10-10-10-10-10-10-10-10-10-10-	
Reporter ±1 +0.6	Opponent ±1	Reviewer ±1 +0.6
Reporter ±1	Opponent ±1  Response to the reporter's solution	Reviewer ±1  Provides a thorough review of report and discussion
tennescalaria de contracto de c	Response to the reporter's solution  Shows the strong and weak points	Provides a thorough review of report and discussion
☐ 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	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  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
☐ 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 the report	<ul> <li>□ Provides a thorough review of report and discussion</li> <li>□ Expresses own opinion about topics presented or discussed</li> <li>□ Relevance of questions to both the reporter and the opponent</li> <li>□ Draws attention to points missed by the reporter or the opponent</li> </ul>
<ul> <li>☐ Quality of experimental technique(s)</li> <li>☐ Structure</li> <li>☐ Explanation of formulae and symbols</li> <li>☐ Appropriate models, conformity of dimensions</li> <li>☐ Slides, on-site experiments, audio.</li> </ul>	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
<ul> <li>☐ Quality of experimental technique(s)</li> <li>☐ Structure</li> <li>☐ Explanation of formulae and symbols</li> <li>☐ Appropriate models, conformity of dimensions</li> <li>☐ Slides, on-site experiments, audio, video, as appropriate</li> </ul>	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
<ul> <li>☐ Quality of experimental technique(s)</li> <li>☐ Structure</li> <li>☐ Explanation of formulae and symbols</li> <li>☐ Appropriate models, conformity of dimensions</li> <li>☐ Slides, on-site experiments, audio, video, as appropriate</li> <li>☐ References, proper citations of ideas and input of others</li> </ul>	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	Fight (Round no.): 4 Room: 6 Stage: 3 Problem no.: 7  Juror: Tu Chenghon Signature: Tu Chenghon.
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 all findings to draw suitable conclusions • an attempt to communicate difficult or ner
An opposition should show that:  • the opponent challenged the reporter's understandin appropriate mathematics presented • the opponent critical opponent appreciated and highlighted the strengths and	ng of the presented concepts, theories and principles • the opponent understood the itiqued the experimental technique used and questioned the validity of the data • the d weaknesses of the report
important aspects (especially the controversial ones) •	ary of the performances the reporter and opponent • the reviewer appreciated the the reviewer's personal opinion was in evidence (not just superficial observations) • d demonstrated, where possible, the reviewer's understanding of concepts, theories, porter and the opponent
<ul> <li>The reporter, opponent and reviewer each start</li> <li>Consider the following suggestions to add to or</li> <li>Select each partial grade from each section and s</li> </ul>	deduct from the initial 5 points.
Rep.: poland 5 Opp	: Australia 5 Rev.: Switzerland 5
Physics ±3 †   Physi	cs ±3 Physics ±3

5	5	5				
Physics ±3	Physics ±3	Physics ±3				
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics				
Scientific approach	☐ Scientific approach	☐ Scientific approach				
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions				
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers				
Presentation ±1 💍	Presentation ±1 0	Presentation ±1				
☐ 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 ☐ Explanation of formulae and	Shows the strong and weak points of the report	Expresses own opinion about 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 can a fight assistant as a fight assistant as a fight assistant as a fight as a f				
☐ 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				

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<b>%</b>	No. of London	1	1	8	#	4	F4	<i>M</i>	7	98		1		Ø	\$ Pa	100	Real Property
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A report should include:  • a resentation of the appropriate camerpts, theories and principles of the problem • an explanation of the absenved phenomena • an application of appropriate mathematics • incommobile experimental technique to gather and record data for demonstrate the phenomena • an application of appropriate mathematics • incommobile experimental technique to gather and record data for demonstrate the phenomena • an application of appropriate mathematics assential foliality in though show that:  • the opponent deallinged the reporter's undestandable manne:  An apposition should show that:  • the opponent deallinged the reporter's undestandable manne:  An apposition should show that:  • the opponent deallinged the reporter's undestandable manne:  • the reserver socreted in healt-gloed the strengths and weaknesses of the report  A review should show that:  • the reserver socreted in healt-gloed the strengths and weaknesses of the report  • the reserver socreted in healt-gloed the strengths and weaknesses of the report  • the reserver socreted in healt-gloed the strengths and weaknesses of the report  • the reserver socreted in healt-gloed the strengths and weaknesses of the report  • the report continuation and principles is the reviewer appreciated the important appears (expectable) the controversial ones) is the reviewer's personal opinion varies important to present (and is a superficial observations) is such personal opinion wave importante, non-rivibile and demonstrated, where possible, the reviewer's and expendition of the important appears (expects) principles and appropriate mathematics used by the reporter on the opponent  • The reporter, opponent and reviewer ends stream the principles of the proposed.  • The reporter, opponent and reviewer ends structively in a principle of the principles of the report of the proposed.  • The reporter of popens and relevant physics  • Select start partial grade for meach section and write in the corresponding box.  • Don't purish missing answers? when no qu	Cooring Cidalia	Fight (Round no.): 4 Room	n:k Stage: Problem no.:							
* in presentation of the appropriate concepts, theories and principles of the problem * an explanation of the appropriate preference of appropriate and entered of appropriate preference in appropriate * in this of deportance and experimental fundings to draw suitable conclusions * an attempt to commence difficult or complex dess in an effective and understandable manner.  An opposition should show that:  * the ceptorent challenged the reporter's understanding of the presenced concepts, theories and principles * the appropriate mathematics presented * the opponent critiqued the experimental technique used and questioned the validity of the doto * the opponent appreciated and highlighted the strengths and weaknesses of the report  A review should show that:  * the reviewer succeeded in spiring an objective summery of the performances the reporter and appropriate the validity of the doto * the opponent appreciated and highlighted the strengths and weaknesses of the report  A review should show that:  * the reviewer succeeded in spiring an objective summery of the performances the reporter and appropriate the important appreciately the controversito (nest) * the reviewer's personal opinion was in evidence (not just superfield observations) * such personal opinions were informatic, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the appropriate appreciate observations of the reporter of the presentation and tor their specific role.  **The grade for each of the three teams consists of a partial grade for physics, presentation and tor their specific role.  **The grade for each of the three teams consists of a partial grade for physics, presentation and tor their specific role.  **The grade for each of the three teams consists of a partial grade for physics, presentation and tor their specific role.  **The grade for each of the three teams consists of a partial grade for physics because the following spe	Scoring Guiaeiii	Juror: YE YEO	_ Signature:							
* the appenent challenged the reporter's understanding of the presented concepts, theories and principles * the opponent understood the appropriate mathematics presented * the opponent cirtiqued the experimental rechnique 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:	• a presentation of 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									
• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinion was in evidence (not just superficial observations) • such personal opinion was in evidence (not just superficial observations) • such personal opinion was in evidence (not just superficial observations) • such personal opinion was in evidence (not just superficial observations) • such personal opinion was in evidence (not just superficial observations) • such personal opinion was in evidence (not just superficial observations) • such personal opinion was in evidence (not just superficial observations) • such personal opinion was in evidence (not just superficial observations) • the reviewer each section and superficial observations of a partial grade for physics, presentation and for their specific role.  The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.  The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.  The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.  The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.  The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.  The grade for each of their specific role.  The grade for each of their specific role.  The grade for each of their specific role.  The reporter and for their specific role.  The reporter and observations of the position with 5 points.  The reporter and observations of the report of the questions to both the report and sumports of the report of the opponent of the points missed by the reporter or the opponent of th	• the opponent <i>challenged</i> the <i>reporter's un appropriate mathematics</i> presented • the op	pponent 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							
<ul> <li>The reporter, opponent and reviewer each start with 5 points.</li> <li>Consider the following suggestions to add to or deduct from the initial 5 points.</li> <li>Select each partial grade from each section and write it in the corresponding box.</li> <li>Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.</li> <li>Rep.:</li></ul>	• the reviewer succeeded in giving an <i>objective summary</i> of the performances the <i>reporter</i> and <i>opponent</i> • the reviewer appreciated the <i>important aspects</i> (especially the <i>controversial</i> ones) • the reviewer's <i>personal opinion</i> was in evidence ( <i>not</i> just <i>superficial observations</i> ) • such personal opinions were <i>informative</i> , <i>non-trivial</i> and demonstrated, where possible, the reviewer's <i>understanding</i> of <i>concepts</i> , theories,									
Physics ±3    Correct and relevant physics   Correct and relevant physics   Scientific approach   Validity of conclusions   Accurate answers   Accurate answers   Accurate answers   Accurate answers   Presentation ±1   Clear and understandable   Appropriate manner   Overall impression   Overall impression   Appropriate manner   Overall impression   Opponent ±1   Provides a thorough review of the report and discussion   Explanation of formulae and symbols   Slides, on-site experiments, audio, video, as appropriate   Contribution to the discussion   Contribution to the discussion   Contribution to the discussion   Content to the collected by the table table to the collected by the table table table to the collected by the table tab	<ul> <li>The reporter, opponent and reviewer each start with 5 points.</li> <li>Consider the following suggestions to add to or deduct from the initial 5 points.</li> <li>Select each partial grade from each section and write it in the corresponding box.</li> </ul>									
Correct and relevant physics    Correct and relevant physics	<b>Rep.:</b> 5	<b>Opp.:</b> 5	<b>Rev.:</b> 5							
Scientific approach	Physics ±3	Physics ±3	Physics ±3							
Presentation ±1  Clear and understandable Appropriate manner Overall impression  Presentation ±1  Clear and understandable Appropriate manner Overall impression  Opponent ±1  Response to the reporter's solution 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  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  Expresses own opinion about topics presented or discussed  Draws attention to points missed by the reporter or the opponent  This sheet will be collected by the	<ul><li>☐ Scientific approach</li><li>☐ Validity of conclusions</li></ul>	☐ Scientific approach ☐ Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions							
☐ Quality of experimental technique(s)       ☐ Response to the reporter's solution       ☐ Provides a thorough review of report and discussion         ☐ Structure       ☐ Shows the strong and weak points of the report       ☐ Explanation of formulae and symbols       ☐ Finds shortcomings or errors in the report       ☐ Relevance of questions to both the reporter and the opponent         ☐ Appropriate models, conformity of dimensions       ☐ Relevance of the questions       ☐ Draws attention to points missed by the reporter or the opponent         ☐ References, proper citations of ideas and input of others       ☐ Contribution to the discussion	☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandable ☐ Appropriate manner							
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  Shows the strong and weak points of the report  Shows the strong and weak points of the report  Finds shortcomings or errors in the report  Relevance of questions to both the report or the opponent  Draws attention to points missed by the reporter or the opponent  This sheet will be collected by the report and discussion	Reporter ±1	Opponent ±1	Reviewer ±1							
<ul> <li>□ Structure</li> <li>□ Explanation of formulae and symbols</li> <li>□ Appropriate models, conformity of dimensions</li> <li>□ Shows the strong and weak points of the report</li> <li>□ Finds shortcomings or errors in the report</li> <li>□ Relevance of the questions</li> <li>□ Draws attention to points missed by the reporter or the opponent</li> <li>□ Contribution to the discussion</li> <li>□ References, proper citations of ideas and input of others</li> </ul>	Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion							
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Final Grade: Reporter

Contribution to the discussion

Final Grade: Opponent

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

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