	Fight (Round no.): Room	n: Stage: Problem no.:
Scoring Guidelin	06 01///1	Signature:
application of appropriate mathematics • rea	sonable experimental technique to gather and perimental findings to draw suitable conclusion	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 und appropriate mathematics presented • the opponent appreciated and highlighted the street	oonent critiqued the experimental technique us	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
important aspects (especially the controversion	al ones) • the reviewer's <i>personal opinion</i> was <i>-trivial</i> and demonstrated, where possible, the	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 a</li> <li>Select each partial grade from each sections.</li> </ul>	onsists of a partial grade for <i>physics, presen</i> ach start with 5 points.  Idd to or deduct from the initial 5 points. It is and write it in the corresponding box. It is questions were posed or not finding short	
Rep.:5	Орр.:	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 +0.3	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 +0.2	Reviewer ±1 40.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak point of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate		by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the
☐ Novelty of the report		fight assistant, so we can see archive your partial grades – please

do not bend

Final Grade: Reviewer

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

Final Grade: Reporter

 $\square$  Contribution to the discussion



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ight (Round no.):	Room:	Stage:	Problem no.: 14	
uror: Narune	Sign	ature:	NS.	

• 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 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</li> </ul>	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Taiwan 5	Opp.: Brazil 5,	Rev.: Singapore 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 +0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 +0.5	Opponent ±1	Reviewer ±1
Quality of experimental technique(s) Was tracker :	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure measure intensity	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	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	knop asking with the reporter didn't do 0.5	This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial Broad
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

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Scoring Guideline	Scorin	g Guidelin	es
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Fight (Round no.):	5 Room	: Sta	ge: 1	Problem no.:	
luror: Loby	sher	Signature: _	Vho	ber	

• 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 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 +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
☐ 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	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
☐ Novelty of the report		archive your partial by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  I after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelines	Scorina	Guidel	lines
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ight (Round no.): _	5	_Room:	1	_Stage:	1	Problem no.: 14	_
uror: Julian	Ron	acher	Signatu	re:	1.1	Romacher	_

• 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 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.

2 r2 #.	0 1	. 11 = 22
Rep.: Triwan 5	Opp.: Brozil 5	Rev.: Singapore 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☑ Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☑ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 04	Presentation ±1 $-0.5$	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 0,2	Opponent ±1	Reviewer ±1 0,4
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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 grown
□ 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	Guidelines

ight (Round no.): _	Room	:/ Stag	ge:	roblem no.:/	4
uror: Ming	Treng	Signature:	Min	g Trung	

• 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

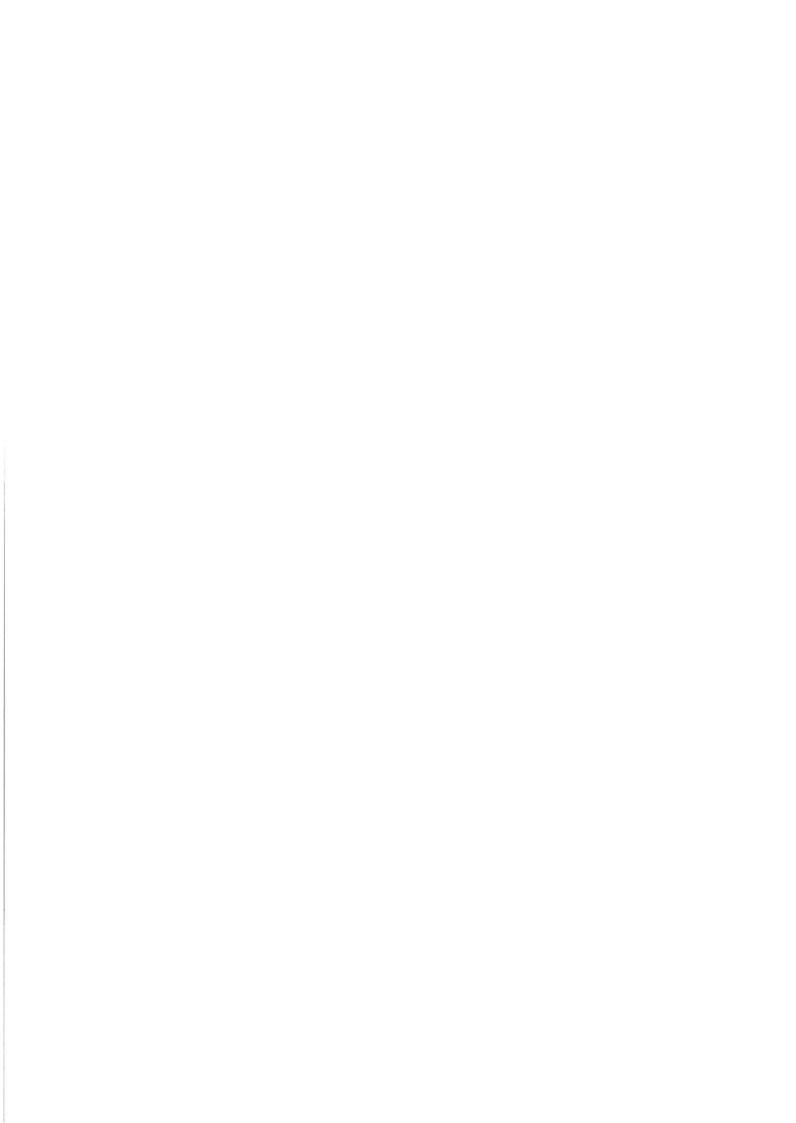
## An opposition should show that:

• 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 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.: Jaiwan 5	Орр.:	Rev.: 5
Physics ±3	Physics ±3	Physics ±3 +2
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 + 0.5	Presentation ±1	Presentation ±1 +0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 / to.J
<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 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> </ul>	☐ 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
☐ Novelty of the report		archive your partial Brown
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Sco	rina	Guid	elines
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ight (Round no.):	Room:	Stage:	Problem no.: 14
uror: Timoshel	ren ko Sign	ature:	bit

• 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 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.: Tarwah 5	Орр.:	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 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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties as
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revise	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelin	Fight (Round no.): Room:	Stage: Problem no.: 2
application of appropriate mathematics • rea	theories and principles of the problem • an exponential technique to gather and reperimental findings to draw suitable conclusions while manner	cord data (or demonstrate the phenomena if
I and the second	erstanding of the presented concepts, theories are conent critiqued the experimental technique used ngths and weaknesses of the report	2
important aspects (especially the controversion	ve summary of the performances the reporter at ones) • the reviewer's personal opinion was in trivial and demonstrated, where possible, the revelop the reporter and the opponent	evidence (not just superficial observations) •
<ul> <li>The reporter, opponent and reviewer each</li> <li>Consider the following suggestions to ach</li> <li>Select each partial grade from each sect</li> </ul>	<i>11</i>	
Rep.:5	Орр.:	Rev.: 5
Physics ±3	Physics ±3	Physics ±3 J0.4
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1 +0.3	Presentation ±1 +0.4	Presentation ±1 +0.4
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and symbols	of the report  Finds shortcomings or errors in	topics presented or discussed  Relevance of questions to both the
Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial great
☐ Contribution to the discussion		do not bend

Final Grade: Opponent

gather and rea	Stage: Problem no.:  Signature: Problem no.:  Signature:  Signature:  Signature:  Signature:  Signature:  Signature:  Signature:	
ts, theories ar	nd <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the	
inion was in e	ad opponent • the reviewer appreciated the evidence (not just superficial observations) • iewer's understanding of concepts, theories,	
ics, presenta points. ding box.	tion and for their specific role.	
	Rev.: 5	
rsics	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	
+0.Y	Presentation ±1  Clear and understandable  Appropriate manner  Overall impression	
+0.8	Reviewer ±1  Provides a thorough review of	
eak points	report and discussion  Expresses own opinion about topics presented or discussed	
rors in	Relevance of questions to both the reporter and the opponent	
ons ussion	Draws attention to points missed by the reporter or the opponent	
	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend	
Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03	

Scoring Guid	elin	les
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Fight (Round no.):	5 Room:	Stage:	2	Problem no.:	2
luror: Name		Signature:	N	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:

- 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.: Brazil 5	Opp.: Singapon 5	Rev.: Taiwan 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 +05	Opponent ±1	Reviewer ±1 40.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial bill
Contribution to the discussion		do not bend
Final Grade: Reporter not good QC,	Final Grade: Opponent Revised	Final Grade: Reviewer I after IOC feedback and approved by EC on 2011-11-03



Scoring	Guidelines
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Fight (Round no.): _	5	_Room: _	1	Stage:	2	Problem no.:	_
Juror:	epsl	ler s	Signatur	re:	VA	Lole	_

• 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 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.: Brasil 5	Opp.: Singar 5	Rev.: Taiwan 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
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	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 8
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



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	y U		

Fight (Round no.):	5	_ Room:	1	_ Stage: _	2 Problem no.:	2
Juror: Jalian	Rona	cher	Signatu	re:	Ronaller	

• 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.: 8/07/6	Opp.: Singapore 5	Rev.: laiwan 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
Clear and understandable	☐ Clear and understandable	☑ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	Overall impression	Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1 0,7	
<ul> <li>Quality of experimental technique(s)</li> </ul>	Response to the reporter's solution	Provides a thorough review of report and discussion	
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	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 give	
Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent Sevised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03	



	Scoring	Guidelines
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ight (Round no.):	Room:	Stage:	2 Problem	n no.: _ 2
uror: Ming	Feng	Signature:	thing	Fung

• 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 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.: 3	Opp.: 5	Rev.:
Physics ±3	Physics ±3	Physics ±3 +1.5
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ 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 to.t	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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	☐ 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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer l after IOC feedback and approved by EC on 2011-11-03



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ight (Round no.): _	$\bigvee$	Room:	1	Stage:	2	Problem no.:	2
uror: Vimos	ncheu	ko	Signatu				

• 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 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.: Brazil 5	Opp.: Singapore 5	Rev.: Vaiwan 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	
	(205)	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	
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent	
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partier g.	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer	



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ight (Round no.): _	Room:	1	_Stage: _	2	Problem no	: 4
uror: AKMU	diin	Signatu	re· /			_
aron. No sophi	4100	Jigitatui	9	y		

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

#### An opposition should show that:

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

#### A review should show that:

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

Rep.:5	Opp.:5	Rev.:
Physics ±3	Physics ±3	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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grade
☐ 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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	y Unit	

Fight (Round no.):	5	Room:	1	Stage:	3	Problem no.:	4
luror: Nazus	~		ignatı		1	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:

- 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.: Singapore 5	Opp.: taiwan 5	Rev.: Brazil 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 10,5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable (+1)	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 +05	Opponent ±1	Reviewer ±1 10.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, yideo, as appropriate	Contribution to the discussion	ask ~ parallax and give explanation of his
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, actial grades – please
☐ Novelty of the report		archive your parties 8.2
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Scorina	Guidelines

Fight (Round no.):	5 Room:	Stage	: Problem	n no.:
luror: Lobe	esher	Signature:	Whoh	۸

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

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Rep.: Singap 5	Opp.: Tai Wan 5	Rev.: 5795
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 +2	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
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial gr
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



# Scoring Guidelines

Fight (Round no.):	5	Room:	1	Stage: _	3	Problem no.:	4
Juror: Julian	Ronac	her	Signature	: 1	Rom	raller	

#### 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

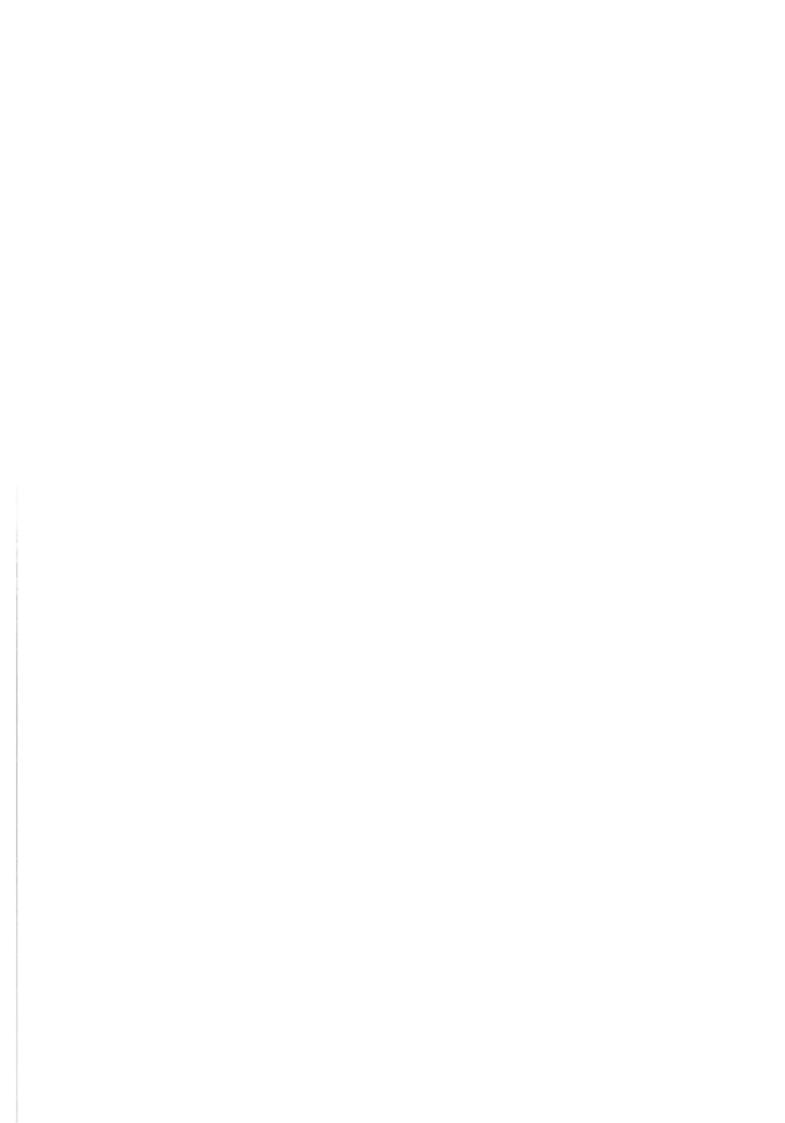
#### An opposition should show that:

• 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 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.

- 1 2 //		. 1
Rep.: Singapove	Opp.: Taiwon	Rev.: Brazil
5	5	5
25	Mol	0.5
Physics ±3	Physics 13	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
Dura (d. 1)	Duncantation 14	Presentation ±1 0,5
Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
AN DE		11. 11/2 [07]
Reporter ±1 0,5	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the
<u>**</u>	the report	reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ 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 can be archive your partial grades – please
Contribution to the discussion		do not bend
Contribution to the discussion	·	
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelin	Fight (Round no.): Room:  By Juror: Ming Fenger	Signature: Ming Fin
application of appropriate mathematics • rea	theories and principles of the problem • an exposonable experimental technique to gather and reconstructed findings to draw suitable conclusions the manner	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's und appropriate mathematics presented • the oppoponent appreciated and highlighted the street	erstanding of the presented concepts, theories an conent critiqued the experimental technique used ngths and weaknesses of the report	d <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controversion	ve summary of the performances the reporter and ones) • the reviewer's personal opinion was in e-trivial and demonstrated, where possible, the revelop the reporter and the opponent	evidence (not just superficial observations) •
<ul> <li>The reporter, opponent and reviewer expensions</li> <li>Consider the following suggestions to a</li> <li>Select each partial grade from each sect</li> </ul>	3.7	
Rep.: <u>SG</u> 5	Opp.:	Rev.: <u>B</u> 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	Opponent ±1	Reviewer ±1
☐ Quality of experimental	Response to the reporter's	Provides a thorough review of report and discussion
technique(s)	solution  Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and symbols	of the report  Finds shortcomings or errors in	topics presented or discussed  Relevance of questions to both the
Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed
☐ Slides, on-site experiments, audio,	Contribution to the discussion	by the reporter or the opponent
video, as appropriate  References, proper citations of ideas and input of others		This sheet will be collected by the
ideas and input of others  Novelty of the report		This sheet will be collected by fight assistant, so we can scan it and archive your partial grades – please
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer  after IOC feedback and approved by EC on 2011-11-03

Scorina	Guidelines

V	1 3 1
Fight (Round no.): Room:	Stage: Problem no.:
	ature:

• 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 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.: Singapore 5	Opp.: Taiwan 5	Rev.: Brazil 5
Physics ±3 +2	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 +0.5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8
☐ 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



Round: Stage 4

		Stage 1		Stage 2			Stage 3			Stage 4		
	taiwan		Singa Pore	Brazil	Singapore		Singapore	taiwan	Bra qil			
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Assen Kyuldilev (chair)	6	6	6	b	7	.6	5	5	5			
Narumon Suwonjandee	Y	7	Q .	5	7	1	M	8	b			
Valentin Lobyshev	E	7	9	5	6	7	8	6	7			
Julian Lonacher	7	Y	E	A	5	Ь	Q	5	7			
Ming Feng	٦	б	8	b	7	7	4	6	6			
Igor Timoshchenko	7	5	7	б	7	8	9	7	6			
Acting Team Member	Vin-Chien Cheng	Thiago Boss-white Bergamaschi	Lee Ju 7se	Matheus Hebrigue de Almeide Camacho	yu Jan Shen	Samuel Lon	Roy Din Ming.	Yin-Chier Cheng	Mathews them eight de Almeida Camacho			
Rejected Problems		,										-
Accepted Problem	14 Charle	od light		2 Plume	of Smoke		4 Likuid	Film Motor				

Scoring Gui	delines	)
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ight (Round no.):	S Room:	2	_Stage:	1	Proble	m no.: <u>1</u>	1
uror: S Byla	ud	Signatu	re:		By		

• 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 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.: Belavis 5	Opp.: Bulgaria 5	Rev.:		
	Mo ince			
Physics ±3 +½	Physics ±3	Physics ±3		
☑ Correct and relevant physics		☐ Correct and relevant physics		
Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	Accurate answers	☐ Accurate answers		
Presentation ±1	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		
<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 of the report	Expresses own opinion about topics presented or discussed		
<ul><li>Explanation of formulae and symbols</li></ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent		
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and grades – please		
☐ Novelty of the report		archive your partial 8		
☑ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03		

Scoring	Guidelines
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Fight (Round no.): _	5	Room:	2	_ Stage: _	1	Problem no.: 1	1
Juror: Hung	-Chi	h Kan	<b>B</b> ignatu	re: 📙	20	& L	

• 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.: 36 5	Rev.:
Physics ±3	Physics ±3	Physics ±3
	Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
		4550
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
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5



Scoring	Guidel	lines

ight (Round no.): _	5	Room:	2	Stage:	Problem no.: _	
uror: Olga Lu	nish	eva	Signatur	e:	Call	

• 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 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.: 8 Gr 5	Rev.:_ US 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
□ Validity of conclusions     □ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation $\pm 1$ $+0.5$	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	El Clear and understandable
🗋 Appropriate manner	Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☐ Overall impression
Reporter $\pm 1$ $+0.5$	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☆ Structure     ☐	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		fight assistant, so we can 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 (	Guidelines
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Fight (Round no.):	2.	Stage: 1.	_ Problem no.:	11.
uror: PANO SOVA DAGHAZ	Signature	e: Pa	4.	

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

# An opposition should show that:

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

#### A review should show that:

- 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.: Belarus 5	Opp.: 3.lgaria 5	Rev.: <u>//SA</u> 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
(// / // // //		1 8 A B
Presentation $\pm 1$	Presentation ±1	Presentation ±1
Clear and understandable	四 Clear and understandable 如	☐ Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 41/2	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties a
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



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Scoring	Gundol	IMPE
	UUIUCI	

ight (Round no.):	_5	Room:	_2:	Stage:	1	_ Problem no.: 4	
uror: Zakhar	Mareli	3	Signature	: p	4		

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

## An opposition should show that:

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

#### A review should show that:

- 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.: Belovus 5	Opp.: bulgaria 5	Rev.: <u>USA.</u> 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
E Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1 0	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 +0,5	Opponent ±1	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
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	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
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		archive your partial Branchive
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Sco	ring	GI	nid	inec
360		UU		

ight (Round no.):	S Room:	Stage:	Problem no.: _	11
uror: Prunt	leal asum sign	nature:	ny	

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



	Scoring	Guide	lines
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ight (Round no.):	Room:	2	Stage:	2	Problem no.: _5
uror: S. Byland		Signatuı	re:	/.	By ()

• 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 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.: Inlyania 5	Opp.: <u>USA</u> 5	Rev.: Belains 5
Physics ±3	Physics ±3 + ½	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
✓ Scientific approach	☐ Scientific approach	☐ Scientific approach
☑ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
		2/255
Presentation ±1 //2	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 +1/2	Reviewer ±1 41/2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity		☐ Draws attention to points missed
of dimensions	Relevance of the questions	by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	J by the
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial B.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer



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Final Grade: Reviewer SteriloC feedback and approved by EC on 2011-11-03	Revised	Final Grade: Opponent	9	Final Grade: Reporter
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bnot bend			noissur	sib et for the distribution to the dis
fight assistant, so we can archive your partial grades – please				☐ Novelty of the report
This sheet will be collected by the			to snoit rs	References, proper citalidess and input of othe
by the reporter or the opponent		Contribution to the disc	oibus ,etne	Slides, on-site experime video, as appropriate
reporter and the opponent  Draws attention to points missed	suo	the report  Relevance of the questi	yrimicy	Appropriate models, co
Relevance of questions to both the	ni srorr	Finds shortcomings or e	pue a	Explanation of formula Symbols
Expresses own opinion about topics presented or discussed	eak points	Shows the strong and w		Structure
Provides a thorough review of report and discussion	s''s	Response to the reporte	1	Quality of experimenta (s)
Reviewer ±1 // //	1	Opponent ±1		Reporter ±1
Overall impression		Overall impression	71	Overall impression
A Appropriate manner		Appropriate manner	Y 1	Appropriate manner
Clear and understandable	əje	Clear and understandab	əjc	Clear and understanda
Presentation ±1	50	Presentation ±1		Presentation ±1
C Accurate answers		Accurate answers	WY	Accurate answers
☐ Validity of conclusions		Validity of conclusions		□ Validity of conclusions
Scientific approach		Scientific approach		Scientific approach
Correct and relevant physics	ysics	Sorrect and relevant ph	soisy	Correct and relevant pl
Physics ±3	1	Physics ±3		Physics ±3
	SILE	6/4/	/ [ <u>V</u> ]	ø.
9	S	Sh :.qqo	S	Rep.: John
		Sh :.qqo	1//	72
nings if there were none to find.	nding shortcon	questions were posed or not fir	ou uəym ,səə	vans' gnissim Asinuq 1'nod •
7 0	ding box. Iding shortcon	on and <b>write it</b> in the correspon guestions were posed or not fir	om each secti	Select each partial grade fi Don't punish missing 'ansv
7 0	ding box. Iding shortcon	de to or deduct from the initial S on and write it in the correspon questions were posed or not fir	gestions to actions of the grant of the gran	Consider the following sug     Select each partial grade fr     Don't punish missing 'ansv
nings if there were none to find.	points. ding box. ding shortcon	de to or deduct from the initial S on and write it in the correspon questions were posed or not fir	d revlewer ea gestions to ac om each secti on when no	The reporter, opponent arm Consider the following sug Select each partial grade fr Don't punish missing 'ansy  On't punish missing 'ansy
tion and for their specific role.	sics, presentar points. ding box.	by the reporter and the opponent consists of a partial grade for physics chiefurt with 5 points. In the initial 5 on and write it in the correspond on and write it in the correspondents.	hree teams to act on each collections to act on act	principles and approprlate math  The grade for each of the to  The reporter, opponent and  Consider the following sug  Consider the following sug  Don't punish missing 'ansy  Principles and
ewer's understanding of concepts, theories, ton and for their specific role.	ossible, the revi sics, presentar points. ding box.	trivial and demonstrated, where poyy the reporter and the opponent prize sol a partial grade for physics chistory with 5 points. In the initial 5 on and write it in the correspond and write it in the corresponding to the corresponding propertions were posed or not fire	ormative, non- hree teams to ac d reviewer ea destions to ac destions to ac	such personal opinions were ing principles and appropriate math  The grade for each of the to  The reporter, opponent and  Consider the following sug  Consider the following sug  Don't punish missing 'ansy  Don't punish missing 'ansy
widence (not just superficial observations) • ewer's understanding of concepts, theories, tion and for their specific role. nings if there were none to find.	pinion was in e sics, presentati points. iding box.	I ones) • the reviewer's personal of trivial and demonstrated, where pay the reporter and the opponent on sists of a partial grade for physical start with 5 points.  Id to or deduct from the initial 5 on and write it in the correspond on and write it in the correspondents.	ne controversian ormatics used by destions to act destions to	important aspects (especially the such personal opinions were injurity to principles and appropriate mathorizables and appropriate mathorizables and the reporter, opponent and Consider the following suggestables of Select each partial grade find the following suggestables and Consider the following suggestables are suggestables and co
ewer's understanding of concepts, theories, ton and for their specific role.	pinion was in e sics, presentati points. iding box.	I ones) • the reviewer's personal of trivial and demonstrated, where pay the reporter and the opponent on sists of a partial grade for physical start with 5 points.  Id to or deduct from the initial 5 on and write it in the correspond on and write it in the correspondents.	ving an objective controversian or controversian designs to act or controversian or controversians to act or controversians and controversians or controversi	important aspects (especially the such personal opinions were injurity to principles and appropriate mathorizables and appropriate mathorizables and the reporter, opponent and Consider the following suggestables of Select each partial grade find the following suggestables and Consider the following suggestables are suggestables and co
d opponent • the reviewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, thon and for their specific role.	he reporter an pinion was in e sessible, the revisibles, presentation points.  Sics, presentation points.	regible and weaknesses of the reporter summary of the performances to lones) • the reviewer's personal of this reporter and the opponent of a partial grade for physical start with 5 points.  The corresponds on and write it in the corresponds on and write it in the corresponds on and write it in the corresponds.	ighted the strenting an objective controversian ormative, non-hree teams co d reviewer ead on each sections to act on each sections to act on the each sections to act on the each sections to act on the each section to act on the each sec	opponent appreciated and highl  A review should show t  • the reviewer succeeded in gir important aspects (especially the such personal opinions were injurisples and appropriate mather principles and appropriate mather reporter, opponent and the reporter, opponent and the following suggestations.
and questioned the validity of the data • the doponent • the reviewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, thon and for their specific role.	schnique used a the reporter an pinion was in e sics, presentati points. ding box.	onent critiqued the experimental to agths and weaknesses of the reporter summary of the performances to ones) • the reviewer's personal of the reporter and the opponent of a partial grade for physical start with 5 points.  The corresponds on and write it in the corresponds on and write it in the corresponds on and write it in the corresponds.	nted • the opposible of the strenning an objective controversian ormative, non-hematics used by the estimatics used by the feams controversians to account of the estimatics of the estimatic of the estimatics of the estimatic of the estimatics of the estimatic of t	appropriate mathematics prese opponent appreciated and highle A reviews should show to the reviewer succeeded in given the reviewer succeeded in given the reviewer succeeded in given the reportant aspects (especially the such personal opinions were in principles and appropriate mather of the reporter, opponent and the reporter, opponent and the reporter the following suggested to the reporter of the tenton of the tenton the reporter of the tenton
d opponent • the reviewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, thon and for their specific role.	schnique used a the reporter an pinion was in e sics, presentati points. ding box.	onent critiqued the experimental to agths and weaknesses of the reporter summary of the performances to ones) • the reviewer's personal of the reporter and the opponent of a partial grade for physical start with 5 points.  The corresponds on and write it in the corresponds on and write it in the corresponds on and write it in the corresponds.	reporter's under of the opporter of the stren ighted the stren ing an objective controversial or controversi	appropriate mathematics prese opponent appreciated and highle A review should show to the reviewer succeeded in given the reviewer succeeded in given the reviewer succeeded in given the reviewer such personal opinions were in principles and appropriate mather reviewers and appropriate mather reviewers and appropriate mather reviewers and appropriate succeeded for each of the tentor of the tentor reviewers and the reporter, opponent and the reporter the following suggested for the reviewers and
d principles • the opponent understood the and questioned the validity of the data • the opponent of the data • the doponent • the reviewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, thon and for their specific role.	ots, theories and schnique used a pinion was in e porter an pinion was in e possible, the revisions, presentation ding box.	pic manner systanding of the presented conceptionental to against and weaknesses of the report ones; and weaknesses of the report ones; and weaknesses of the report ones; and demonstrated, where pay the reporter and the opponent on start with 5 points.  The start with 5 points.  The reporter and the opponent on and write it in the corresponent on and write it in the corresponent on and write it in the corresponent.	d understandal now that: reporter's unde ighted the stren ighted the stren ormative, non- rematics used b	complex ideas in an effective an An opposition should should sho the opponent challenged the appropriate mathematics presedopponent appreciated and highly opponent appreciated and highly the reviewer succeeded in girly mathematically consider and appropriate mathematically consider and appropriate mathematically consider the following suggestations.
• an attempt to communicate difficult or definition of the opponent understood the and questioned the validity of the data • the viewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, thon and for their specific role.	ote conclusions ots, theories and coningue used a pinion was in e sics, presentat sics, presentat ding box. ding shortcon	erimental findings to draw suitable manner  pretanding of the presented conceptionent critiqued the experimental to agths and weaknesses of the reportiones) • the reviewer's personal of the reportations and demonstrated, where pay the reporter and the opponent of a partial grade for physonal start with 5 points.  The start with 5 points.  The reporter and the opponent on and write it in the correspond on and write it in the corresponding to or deduct from the initial 5 on and write it in the corresponding to	etical and expedical and erical and erstandabinow that:  reporter's undeficities and objective controversian objective compostics used by the end of reviewer eads of reviewer e	appropriate) • linking of theory complex ideas in an effective an An opposition should
ord data (or demonstrate the phenomena if  • an attempt to communicate difficult or  d principles • the opponent understood the and questioned the validity of the data • the vidence (not just superficial observations) •  ewer's understanding of concepts, theories, thon and for their specific role.	gather and recopies conclusions ots, theories and pinion was in e sics, presentati sics, presentati sics, presentati sics, presentati	onable experimental technique to primental findings to draw suitable manner  pretanding of the presented conceptions of the presented conceptions of the presented the report of the rep	etical and expediture of tease etical and expediture of the opposite of the strengishted th	appropriate) of appropriate mate appropriate of theory complex ideas in an effective an An opposition should should shop opponent challenged the appropriate mathematics presed appropriate mathematics presed appropriate and highly opponent appreciated and highly opponent appropriate succeeded in girly material personal opinions were insprinciples and appropriate material principles and ap
• an attempt to communicate difficult or definition of the opponent understood the and questioned the validity of the data • the viewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, thon and for their specific role.	gather and recopies conclusions ots, theories and pinion was in e sics, presentati sics, presentati sics, presentati sics, presentati	onable experimental technique to primental findings to draw suitable manner  pretanding of the presented conceptions of the presented conceptions of the presented the report of the rep	riate concepts, fematics o reas etical and expidence dunderstandably on the strength of the st	appropriate) of appropriate mate appropriate of theory complex ideas in an effective an An opposition should should shop opponent challenged the appropriate mathematics presed appropriate mathematics presed appropriate and highly opponent appreciated and highly opponent appropriate succeeded in girly material personal opinions were insprinciples and appropriate material principles and ap
lanation of the observed phenomena • an ord data (or demonstrate the phenomena if • an attempt to communicate difficult or denies of the opponent understood the and questioned the validity of the data • the reviewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, theories, and for their specific role.	blem • an exp gather and reciple conclusions bits, theories and pinion was in e possible, the revi sics, presentation sics, pre	onable experimental technique to primental findings to draw suitable manner  pretanding of the presented conceptions of the presented conceptions of the presented the report of the rep	riate concepts, fematics o reas etical and expidence dunderstandably on the strength of the st	a presentation of the appropriate math appropriate math appropriate)     complex ideas in an effective and complex ideas in an effective and appropriate mathematics present appropriate and appropriate math principles and appropriate math appropriate m
lanation of the observed phenomena • an ord data (or demonstrate the phenomena if • an attempt to communicate difficult or denies of the opponent understood the and questioned the validity of the data • the reviewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, theories, and for their specific role.	blem • an exp gather and reciple conclusions bits, theories and pinion was in e possible, the revi sics, presentation sics, pre	theories and principles of the properties and principles of the propertimental fechnique to be manner assument of the presented concept of the cexperimental to the concept of the reportation of the performances of the reportation of the reportation of the performances of the reportation of	riate concepts, etical and exporter's under the strength on the controversing ighted the strength on the controversing ighted the strength on the opporter's under controversing ighted the strength on the opporter's under the strength of the opporter's under the strength of the opporter's under the strength of the opporter's under the controversing ighted the strength of the opporter's under the strength of the opporter's under the opporter's unde	A report should include a presentation of the appropriate mate application of appropriate mate appropriate of theore complex ideas in an effective an appropriate mathematics present appropriate and such personal opinions were informations were informational appropriate mathematics and appropriate and appropriate mathematics and appropriate mathematics and appropriate and
Jignature: Januation of the observed phenomena of an altempt to communicate difficult or demonstrate the phenomena if a principles of the opponent understood the and questioned the validity of the data of the validity of the data of the ewer's understanding of concepts, theories, ewer's understanding of the concepts, theories, ewer's understanding of concepts, theories, theories, ewer's understanding of concepts, theories, ewer's understanding of concepts, theories, ewer's understanding of concepts, theories, ewer end of concepts, the ewer end of concepts.	blem • an exp gather and reciple conclusions of conclusions of the conclusions of the reporter and pinion was in e prinion was in e prinion was in e prinion was in e for reporter and in e for reviping the reviping in e	theories and principles of the properties and principles of the prosecution of the presented conception of the presented conception of the presented conception of the presented conception of the cammary of the performances of the reportativial and weaknesses of the reportativial and demonstrated, where portativial and demonstrated, where portativial and demonstrated, where postivitial and demonstrated of the reportativitial of points.  The reporter and the opponent of start with 5 points.  The reporter and the opponent of a partial grade for physical and demonstrated or the physical start with 5 points.  The reporter and the concepton on and write it in the correspondence on and write it in the correspondence on and write it in the correspondence.	riate concepts, etical and exporter's under the strength on the controversing ighted the strength on the controversing ighted the strength on the opporter's under controversing ighted the strength on the opporter's under the strength of the opporter's under the strength of the opporter's under the strength of the opporter's under the controversing ighted the strength of the opporter's under the strength of the opporter's under the opporter's unde	a presentation of the appropriate math appropriate math appropriate)     complex ideas in an effective and complex ideas in an effective and appropriate mathematics present appropriate and appropriate math principles and appropriate math appropriate m
lanation of the observed phenomena • an ord data (or demonstrate the phenomena if • an attempt to communicate difficult or denies of the opponent understood the and questioned the validity of the data • the reviewer appreciated the vidence (not just superficial observations) • ewer's understanding of concepts, theories, theories, and for their specific role.	blem • an exp gather and reciple conclusions of conclusions of the conclusions of the reporter and pinion was in e prinion was in e prinion was in e prinion was in e for reporter and in e for reviping the reviping in e	theories and principles of the properties and principles of the prosecution of the presented conception of the presented conception of the presented conception of the presented conception of the cammary of the performances of the reportativial and weaknesses of the reportativial and demonstrated, where portativial and demonstrated, where portativial and demonstrated, where postivitial and demonstrated of the reportativitial of points.  The reporter and the opponent of start with 5 points.  The reporter and the opponent of a partial grade for physical and demonstrated or the physical start with 5 points.  The reporter and the concepton on and write it in the correspondence on and write it in the correspondence on and write it in the correspondence.	riate concepts, etical and exporter's under the strength on the controversing ighted the strength on the controversing ighted the strength on the opporter's under controversing ighted the strength on the opporter's under the strength of the opporter's under the strength of the opporter's under the strength of the opporter's under the controversing ighted the strength of the opporter's under the strength of the opporter's under the opporter's unde	A report should include a presentation of the appropriate mate application of appropriate mate appropriate of theore complex ideas in an effective an appropriate mathematics present appropriate and such personal opinions were informations were informational appropriate mathematics and appropriate and appropriate mathematics and appropriate mathematics and appropriate and
Jignature: Januation of the observed phenomena of an altempt to communicate difficult or demonstrate the phenomena if a principles of the opponent understood the and questioned the validity of the data of the validity of the data of the ewer's understanding of concepts, theories, ewer's understanding of the concepts, theories, ewer's understanding of concepts, theories, theories, ewer's understanding of concepts, theories, ewer's understanding of concepts, theories, ewer's understanding of concepts, theories, ewer end of concepts, the ewer end of concepts.	blem • an exp gather and reciple conclusions of conclusions of the conclusions of the reporter and pinion was in e prinion was in e prinion was in e prinion was in e for reporter and in e for reviping the reviping in e	theories and principles of the properties and principles of the prosecution of the presented conception of the presented conception of the presented conception of the presented conception of the cammary of the performances of the reportativial and weaknesses of the reportativial and demonstrated, where portativial and demonstrated, where portativial and demonstrated, where postivitial and demonstrated of the reportativitial of points.  The reporter and the opponent of start with 5 points.  The reporter and the opponent of a partial grade for physical and demonstrated or the physical start with 5 points.  The reporter and the concepton on and write it in the correspondence on and write it in the correspondence on and write it in the correspondence.	riate concepts, etical and exporter's under the strength on the controversing ighted the strength on the controversing ighted the strength on the opporter's under controversing ighted the strength on the opporter's under the strength of the opporter's under the strength of the opporter's under the strength of the opporter's under the controversing ighted the strength of the opporter's under the strength of the opporter's under the opporter's unde	A report should include a presentation of the appropriate mate application of appropriate mate appropriate of theore complex ideas in an effective an appropriate mathematics present appropriate and such personal opinions were informations were informational appropriate mathematics and appropriate and appropriate mathematics and appropriate mathematics and appropriate and

# **Scoring Guidelines**

Fight (Round no.):	5 Roc	om: 2	_Stage: 2	_ Problem no.: _	5
Juror: Olga Iv	nis heve	Signatu	re: Oh	l	

## 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

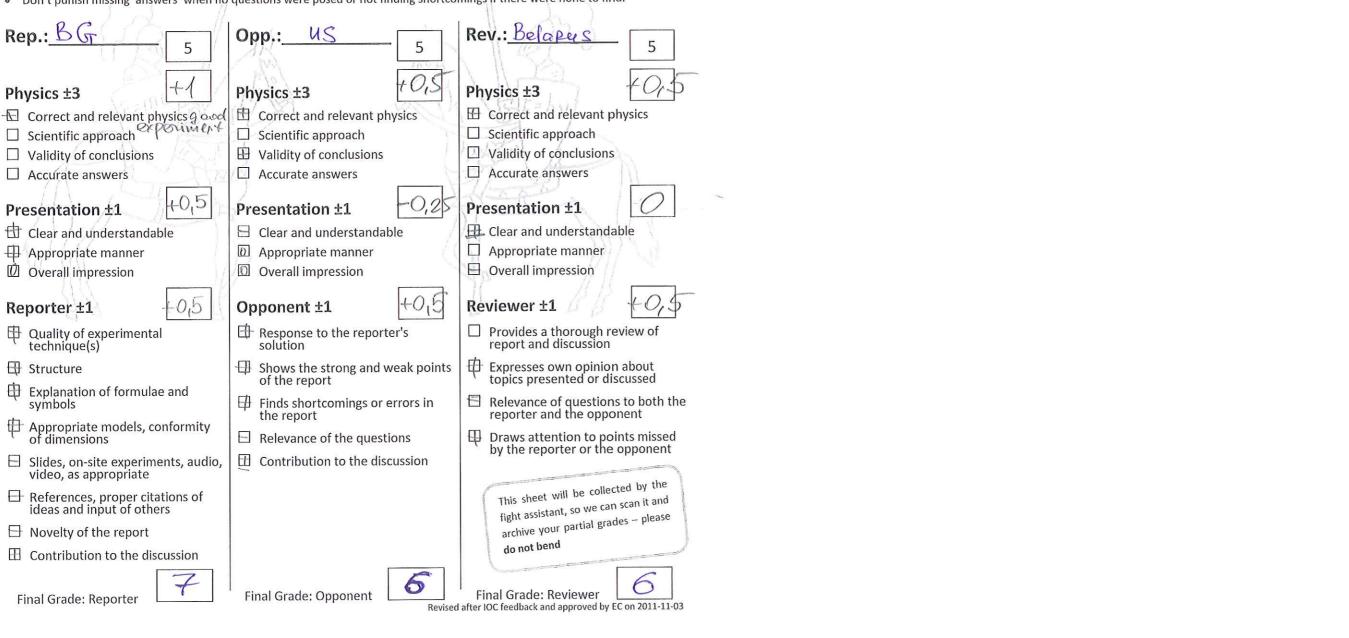
## An opposition should show that:

• 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 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.

Kep.: 25 01 5	5 S	5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics g and	Correct and relevant physics	
☐ Scientific approach Porimers	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	₩ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 -0,5	Opponent ±1	Reviewer ±1 40,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
□ Novelty of the report		archive your partial great
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



# Scoring Guidelines

ight (Round no.): _	T.	Room:	2	Stage:	II.	Problem no.:	5.	
uror: PANOSON	A/D	A 601AZ	Signati	ıre:	Par			

# 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.: 30LGAZIA 5	Opp.: Frank USA 5	Rev.: 3ELAEUS 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
□ Scientific approach     □	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +1/2	Presentation ±1	Presentation ±1 -1/4
☐ Clear and understandable	Clear and understandable	Elear and understandable gave
☐ Appropriate manner	Appropriate manner	☑ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +1/2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points 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> </ul>	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 s.
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



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Scoring	Guiaei	ines

Fight (Round no.):	5	_Room:	2	Stage: _	2	_ Problem no.:	5	
Juror: Zalchar	mai	telis	Signature	: 0	20			

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Bulgaria 5	Opp.: USA 5	Rev.: Belarus 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 0,5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial B
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



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	5	2	2	Problem no.:	)
ight (Round no.): _	RC	oom:	Stage:	_ Problem no.:	
uror: Prwt	Kalas	, <mark>M</mark> Signature	a topo ::	my d	

• 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 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	Орр.:	Rev.:5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1  Quality of experimental technique(s)  Structure  Explanation of formulae and	Opponent ±1  Response to the reporter's solution  Shows the strong and weak points of the report  Finds shortcomings or errors in	Reviewer ±1  Provides a thorough review of report and discussion  Expresses own opinion about topics presented or discussed  Relevance of questions to both the
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  Contribution to the discussion	reporter and the opponent  Draws attention to points missed by the reporter or the opponent
<ul> <li>□ References, proper citations of ideas and input of others</li> <li>□ Novelty of the report</li> <li>□ Contribution to the discussion</li> </ul> Final Grade: Reporter	Final Grade: 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 after IOC feedback and approved by EC on 2011-11-03



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SCO	rino	Guide	lines

Fight (Round no.): 5	Room: 2 Stage: 3 Problem no.:13
Juror: S By land	Signature:

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

#### An opposition should show that:

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

#### A review should show that:

- The 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.

кер.: 5	Opp.: 5	Kev.: 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
Clear and understandable	☐ Clear and understandable	Clear and understandable
☑ Appropriate manner	Appropriate manner	☐ Appropriate manner
☑ Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 /2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☑ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others	-	This sheet will be collected by the fight assistant, so we can scan it and
□ Novelty of the report		archive your partial Bra
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



Scoring	Guidelines

Fight (Round no.): 5 Room: 2 Stage: 3 Problem no.: 13

Juror: Hung-Chih Kam Signature: 13

#### 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: <u>US</u> 5	Opp.: 87 5	Rev.: 86 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	M 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
		4000
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	☐ Clear and understandable
✓ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
		4.00
Quality of 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		
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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8.
☐ 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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999			

Fight (Round no.):	5	Room:	2	Stage:	3	roblem no.:	13
Juror: Olga Lu	isher	19_	Signature	e: <u></u>	a	2	

• 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 appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult of 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.: USA 5	Opp.: Belaeus 5	Rev.: Bulgary 5
Physics ±3	Physics ±3	Physics $\pm 3$ $\neq 0,5$
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach AC ?		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	O Clear and understandable	Clear and understandable
O Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 40,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	⊞ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, actial grades – please
□ Novelty of the report		archive your partial gran
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

rved phenomena • an trate the phenomena if mmunicate difficult or
ponent understood the alidity of the data • the
viewer appreciated the erficial observations) • g of concepts, theories,
pecific role.
none to find.
ary 5
+0,5
relevant physics proach prolusions
wers
±1
ession $+0.5$
norough review of iscussion
vn opinion about nted or discussed
questions to both the the opponent
tion to points missed ter or the opponent
ill be collected by the t, so we can scan it and partial grades – please
eviewer 6

Scoring G	Guidelines
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ight (Round no.): _	V.	Room:	2.	Stage:	11.	Problem no.:	13.
luror: PANOSOVA	DA61	YAZ	Signatu			Pau.	

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: <u>#\$A</u> 5	Opp.: Belarus 5	Rev.: Bulgaria 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 çi₩
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter $\pm 1$ $-1(2)$	Opponent ±1	Reviewer ±1 412
Quality of 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  **Moreover Amount of the 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 Bra
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer lafter IOC feedback and approved by EC on 2011-11-03

Scoring	Guidel	ines

ight (Round no.): _	5 Room:	2 St	age: 3	Problem no.: 13
uror: Zakhar W	Marzelis	Signature:	by	

• 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 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.: MSA 5	Opp.: Belans 5	Rev.: Buyana 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 0
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 +0,5	Opponent ±1	Reviewer ±1 4 70,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	☐ 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> </ul>	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 B
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



Sco	ring	Gu	id	el	in	es
			B 63			

		9	0		
ight (Round no.): _	Room:	Stage	. 3	_ Problem no.: _	
uror: fruet	kalasuwa	1Signature:o	Loper	anysto	

• 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 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	Орр.:	Rev.:
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	Contribution to the discussion	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial gra
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



Round: Room: Z Fight Assistants: Kunakarn Palawang / Jiya pam Suenjue

		Stage 1			Stage 2			Stage 3	1		Stage 4	
Team	Belarus	Bulgaria	USA	Bulgaria	USA	Belarus	USA.	Be larus	Bulgaria			
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Samuel Byland	5	b	6	6	6	5	6	6	6			
Hung - Chih kan	6	7	5	6	8	5	7	7	6			
Olga Inisheva	6	7	5	7	6	6	4	7	b			
Dagmar Panosova	6	Ь	5	6	5	5	4	7	b			
Zakhar Maizelis	7	6	5	4	5	5	4	7	7			
Pruet Kalasu wan	7	6	6	5	6	7	6	6	1			
Acting Team Member	Dmitriy BARAMON	Diffyan Hristov	Karl Senick	Nikolay Nikolov	John Lukowski	Anton Rusanov	John Lukowski	Dritily Baranov	Dilyan Hristov			
Rejected Problems												
Accepted Problem		11			5			13			-	

Signature Fight Assistant: K. Ada wone. Double-checked with Scoring Guidelines by second Fight Assistant (signature): Jimpon Samjue.

Sco	rina	Guid	elines
	0000		

ight (Ro	ound no	o.):	Room:	3	Stage:		Problen	n no.: _	13
uror: _	F.	SONG		Signatı	ıre:	7	50	ng	

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 10 5	Opp.: Swithland 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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	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 grad
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer 6



SCOULING GAINCHINGS	Scorina	Guidelines
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Fight (Round no.):	5	Room:	3	_ Stage:	1	Problem no.: 13
Juror: Andre:	KIR	show	Signatu	re:	flo	acutur

• 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 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.

	Z :2E II F	I A Shall
Rep.: Hungary 5	Cioles Kein Coch 5	Rev.: Australia 5
Hudros Loulo	Lioka Kein boch	Kern Chong
Physics ±3	Physics ±3 + 1	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Duocontation 41	D	Draggetting 12
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 40,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Scoring	Guidelines
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Fight (Round no.): _	5	_ Room:	3 Stage:		
Juror: kulius	Kyi	V.	Signature:	AD.	_

• 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

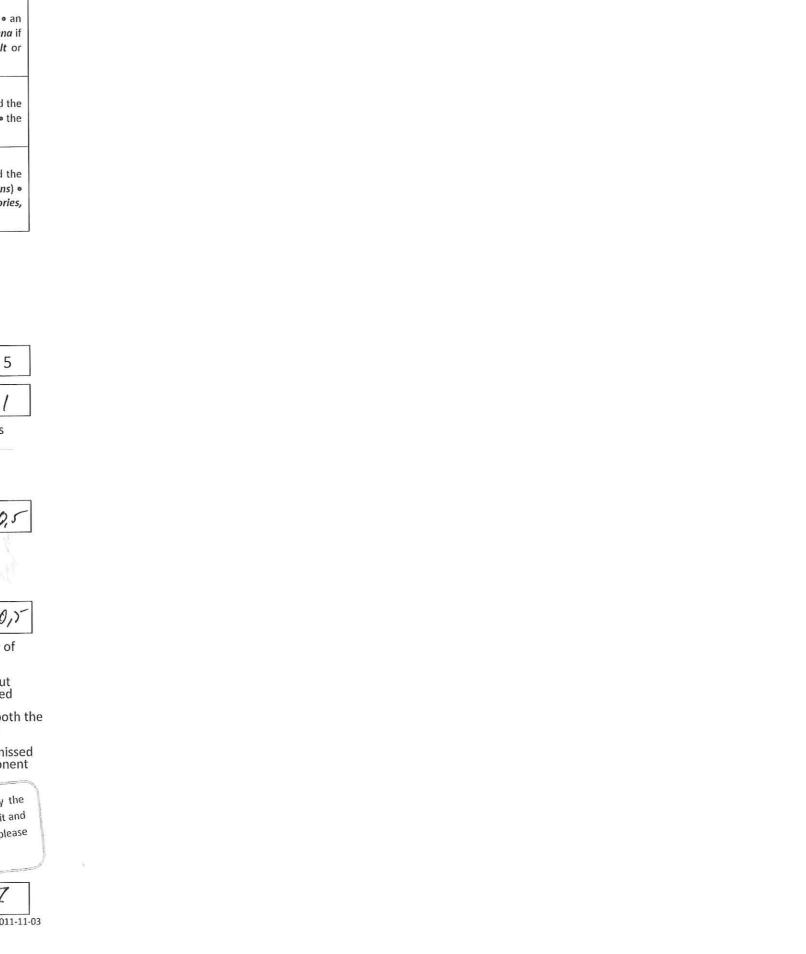
# An opposition should show that:

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Hungary 5	Opp.: Lioba Heimbach 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
		1 5 5 E
Presentation ±1	Presentation ±1	Presentation $\pm 1$ $g_i S$
☐ Clear and understandable	☐ Clear and understandable	🛱 Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 0,5	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial B
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  I after IOC feedback and approved by EC on 2011-11-03



# **Scoring Guidelines**

Fight (Round no.): 5 Room: 3 Stage: 1 Problem no.: 13

Juror: Warasan Kundhi kay) Signature: Man

# 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

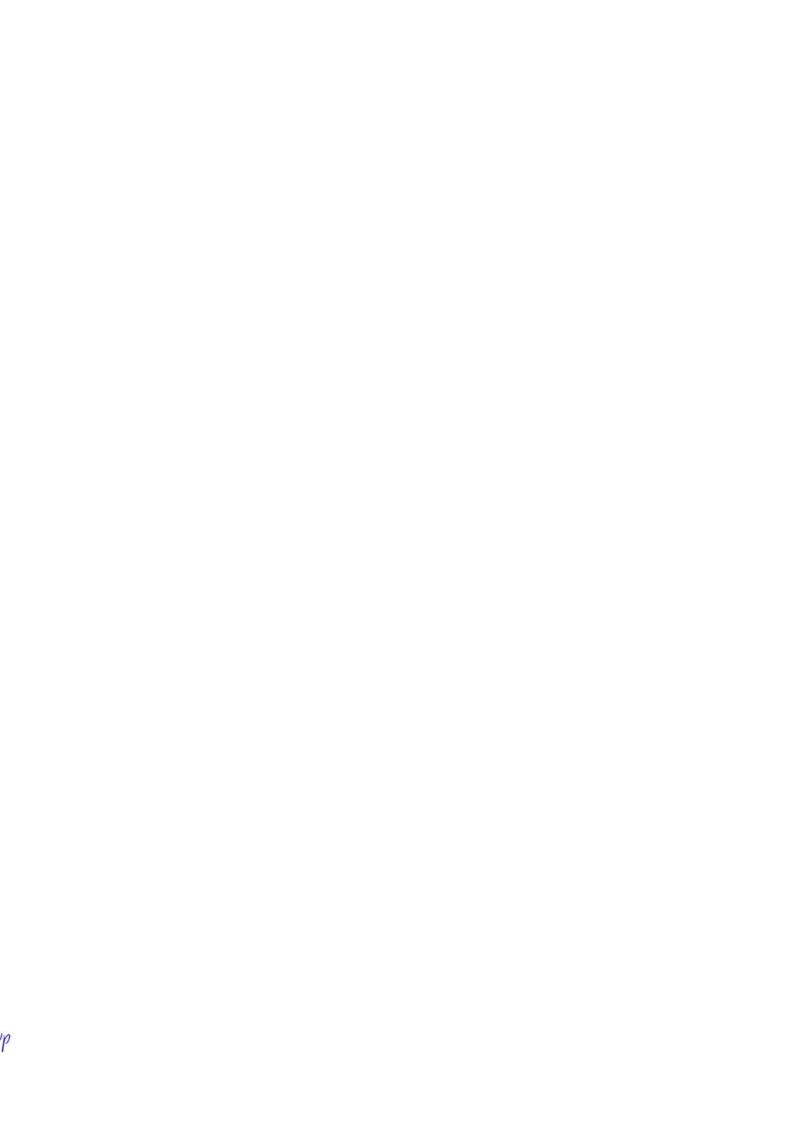
#### A review should show that:

• 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.: Hungany 5	Opp.: Switzerland 5	Rev.: Austmlia. 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 76.5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 +0.5	Opponent ±1	Reviewer ±1 40,5
Quality of experimental your dechnique(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 grow
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6

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



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Scoring	Guidei	ines

Fight (F	Round no.): _	5	_ Room:	3	_ Stage: _	1 Proble	em no.: 🔼	3
Juror:	STANISC	AV 1	PANOS	Signatu	ıre:	Pan	- 5	

• 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 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 c punish missing unswers when no	questions were posed of first intaing entertee	
Rep.: HUNGARY 5	Opp.: SWITZERLAND 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
E 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
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, as we can grades – please
☐ Novelty of the report		archive your partial state
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03

Scoring	Guidelines
A vanavt should	indudor

Fight (Round no.):	5	Room: 3 Stage:	
Juror: Tan	Joy	Signature:	2

• 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 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.

boll t pullish fillssing answers when no	questions were posed of not initially shorteon	mings in there were none to inter
Rep.: Hunguy Andres 5	Opp.: Switehal 5	Rev.: Australla 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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	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	IL The
References, proper citations of ideas and input of others	question alt validity of conduction of T&E models  Ack odd frietly	This sheet will be come
☐ Novelty of the report	Law and firm	archive your partial 6
☐ Contribution to the discussion	in they	do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



	Fight (Round no.): Roo	m: 3 Stage: 2 Problem no.: 4
Scoring Guideli	nes Juror: F. SON 61	_ Signature.
application of appropriate mathematics •	pts, theories and principles of the problem • an reasonable experimental technique to gather and experimental findings to draw suitable conclusingable manner	record data (or demonstrate the phenomena
An opposition should show that the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the states.	<i>understanding</i> of the presented <i>concepts, theorie</i> opponent <i>critiqued</i> the <i>experimental technique</i> us	s and principles • the opponent understood th sed and questioned the validity of the data • th
important aspects (especially the controve such personal opinions were informative, r principles and appropriate mathematics us	ective summary of the performances the reportersial ones) • the reviewer's personal opinion was non-trivial and demonstrated, where possible, the sed by the reporter and the opponent as consists of a partial grade for physics, preserved.	in evidence (not just superficial observations) reviewer's understanding of concepts, theories
The reporter, opponent and reviewe Consider the following suggestions to Select each partial grade from each s		
Rep.: Swalmad 5	Opp.: Austrilia 5	Rev.: Hungary 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
Accurate diswels	1	A 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
// / / /	Presentation ±1	Presentation ±1
// / / /	Presentation ±1  ☐ Clear and understandable	Presentation ±1  ☐ Clear and understandable
Presentation ±1	Y A	// // // // // // // // // // // // //
Presentation ±1.  ☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Presentation ±1.  ☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandable ☐ Appropriate manner

application of appropriate mathematics • reas	theories and principles of the problem • an exponable experimental technique to gather and receimental findings to draw suitable conclusions to the manner	cord data (or demonstrate the phenomena if
An opposition should show that:		
• the opponent challenged the reporter's under	erstanding of the presented concepts, theories ar	nd <i>principles</i> • the opponent understood the
appropriate mathematics presented • the oppo opponent appreciated and highlighted the stren	onent critiqued the experimental technique used agths and weaknesses of the report	and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:	<u> </u>	
• the reviewer succeeded in giving an objective	e summary of the performances the reporter ar	nd opponent • the reviewer appreciated the
important aspects (especially the controversia	ones) • the reviewer's <i>personal opinion</i> was in e trivial and demonstrated, where possible, the rev	evidence (not just superficial observations) •
p	-0	Comment of the Commen
	nsists of a partial grade for physics, presenta	tion and for their specific role.
<ul> <li>The reporter, opponent and reviewer ea</li> </ul>		N.
• Consider the following suggestions to ac		
• Select each partial grade from each secti		mings if there were none to find
<ul> <li>Don't punish missing 'answers' when no</li> </ul>	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Swalnod	Onn: 1 dille	Rev.: Hungang
Rep.: malmal 5	Opp.: Austrilia 5	5
	TAVE	
Plausias ±2	Dhysics 42	Physics ±3
Physics ±3	Physics ±3	V tell' a Juni
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
	N <u>1.</u> (7)	Appropriate manner
Appropriate manner	Appropriate manner	Overall impression
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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial s
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

Sco	rina	Guid	lelines
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ight (Round no.): _	5	_Room: _	3	_Stage: _	2	_ Problem no.: _	4
uror: Audrei 1	Los	Ju.	Signatur	e:/	Kni	mum	

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

# An opposition should show that:

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

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *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.

- 1112 /	Λ	1 1 12 22
Rep.: Sultzerland 5	Opp.: Hustralsa 5	Rev.: Mungary 5
Holevel Poglacions 5	Adri yo solli	Noel. Plasako.
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
//\ / 4		
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
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		fight assistant, so we can see archive your partial grades – please
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Sco	rina	Guidelines	
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ight (Round no.):	5	Room:	3	_ Stage: _	II	Problem no.: _	4
uror: Kuling	skiy	V.	Signatu	re:	An	)	

• 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 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.: M. Rogennoser 5	Opp.: Austrelie 5	Rev.: Mungary Nove Hardo! 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics☐ Scientific approach
☐ Scientific approach ☐ Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Accurace answers		1/55
Presentation ±1 0,5	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial gran
☐ 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 Guidelines

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

Juror: Marson Kundhikayyi Signature: Mh

#### 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Switzerland 5	Opp.: Australia 5	Rev.: Hungary 5
Physics ±3	Physics ±3	Physics ±3 +0.5
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 + (	Opponent ±1	Reviewer ±1 40.5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grad
☐ 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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SCORING	Guidelines

Fight (Round no.): 5	Room: 3	_ Stage: _	2	Problem no.:	4
Juror: STAWISCAV	PAPOS Signatu	ıre:	Pan	-5	

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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 SWITTELAND	questions were posed or not finding shortco	mings if there were none to find.
Rep.: AUSTRALIA 5	Opp.: AUSTRACIA 5	Rev.: HUNGARY 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 fine	☐ Appropriate manner
☐ Overall impression	Uverall 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
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ 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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial give
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelin		m: Stage: Problem no.:
application of appropriate mathematics • rea	sonable experimental technique to gather and perimental 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
	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 controversi	al ones) • the reviewer's personal opinion was -trivial and demonstrated, where possible, the	r and opponent • the reviewer appreciated the in evidence (not just superficial observations) • reviewer's understanding of concepts, theories,
<ul> <li>The reporter, opponent and reviewer e</li> <li>Consider the following suggestions to a</li> <li>Select each partial grade from each sec</li> </ul>	consists of a partial grade for <i>physics, prese</i> ach <i>start with 5 points</i> .  Indeed to or <i>deduct</i> from the initial <i>5 points</i> .  It is the corresponding box.  It is questions were posed or not finding shor	
Rep.: Switzeland 5	Opp.: Australla  Aclityon  5	Rev.: Hungar. 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 ambiguin	Accurate answers	Accurate answers

Rep.: Switzelud  Michael  5	Opp.: Australla  Aclityon  5	Rev.: Hungar. 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 but ambiguing ☐ Accurate answers	☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions ☐ 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 Silvacorto	☐ Shows the strong and weak points of the report	Expresses own opinion about discussed topics presented or discussed
☐ Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so the grades – please
Movelly of the report		archive your partial grand
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

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Scoring Guidelin	OC.	3 Stage: 3 Problem no.: 16
	Juror: F. SONG	Signature:
application of appropriate mathematics • rea	theories and principles of the problem • an exponential technique to gather and reperimental findings to draw suitable conclusionable manner	cord data (or demonstrate the phenomena if
	erstanding of the presented concepts, theories are conent critiqued the experimental technique used ngths and weaknesses of the report	
important aspects (especially the controversion	we summary of the performances the reporter at ones) • the reviewer's personal opinion was in trivial and demonstrated, where possible, the revelop the reporter and the opponent	evidence (not just superficial observations) •
The reporter, opponent and reviewer each Consider the following suggestions to and Select each partial grade from each sect	//	
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 th
<ul> <li>Appropriate models, conformity of dimensions</li> <li>□ Slides, on-site experiments, audio,</li> </ul>	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		This sheet will be collected by the fight assistant, so we can scan it and
<ul><li>□ Novelty of the report</li><li>□ Contribution to the discussion</li></ul>		fight assistant, so we can be archive your partial grades – please do not bend

Final Grade: Opponent

Final Grade: Reporter

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

Coordina	Caridalina
Scoring	Guidelines

ight (Round no.):	5	Room:	3	Stage:	3	_ Problem no.:	16	
uror: Audros	16/83	lon	Signatur	e: "	Ma	ucum		

• 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 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.: Australia 5 Add tya Sells, 5	Opp.: Mungory 5	Rev.: Surtzerloyd  Wothern Loxbuler 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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grade
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

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Sco	rina	Guideline	5
		Udideiiiie	9

Fight (Round no.): _	5	_ Room:	3	_ Stage:	111	_ Problem no	.:
Juror: Kuling	kyi	V.	Signatu	re:	//	£	

• 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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Rep.: Australie 5	Opp.: Hungary 5	Rev.: Switzerslauf 5
Physics ±3  ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers  Presentation ±1 ☐ Clear and understandable	Physics ±3  ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers  Presentation ±1 ☐ Clear and understandable	Physics ±3  ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers  Presentation ±1 ☐ Clear and understandable
☐ Appropriate manner ☐ Overall impression	☐ Appropriate manner ☐ Overall impression	☐ Appropriate manner ☐ Overall impression  Reviewer +1  □ 0,5
Reporter ±1  Quality of experimental technique(s)  Structure  Explanation of formulae and symbols	Opponent ±1  ☐ Response to the reporter's solution ☐ Shows the strong and weak points of the report ☐ Finds shortcomings or errors in	☐ Provides a thorough review of report and discussion ☐ Expresses own opinion about topics presented or discussed ☐ Relevance of questions to both the
<ul> <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>	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  This sheet will be collected by the
9 Novelty of the report  Contribution to the discussion  Final Grade: Reporter	Final Grade: Opponent Revised	This sheet will be contected  fight assistant, so we can scan it and fight assistant assistant places.  Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Scoring	Guidelines
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ight (Round no.):	5	Room:	3	Stage: 3	_ Problem no.:	16
uror: Wonson	Kun	dhika	h lat	a flor	1/4	

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

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

Rep.: Australia. 5	Opp.: Hungary_ 5	Rev.: Switzenland 5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1  Clear and understandable Appropriate manner	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1  Clear and understandable Appropriate manner	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1  Clear and understandable Appropriate manner
Overall impression  Reporter ±1	Opponent ±1	Overall impression  Reviewer ±1  +0.5
<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> <li>□ Novelty of the report</li> <li>□ Contribution to the discussion</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  Contribution to the discussion	Provides a thorough review of report and discussion  Expresses own opinion about topics presented or discussed  Relevance of questions to both the reporter and the opponent  Draws attention to points missed by the reporter or the opponent  This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and archive your partial grades – please do not bend
Final Grade: Reporter 5	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Scoring Gui	ideline	S
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ight (Round no.):	5	_ Room:	3	_ Stage:	3	Problem no	16
uror: STAWSCA	au Pa	Thos	Signatu	re:	Pa	6	

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

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		1
Rep.: AUSTRALIA 5	Opp.: HUNGARY 5	Rev.: SWITZEPLAND 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
- color used in presubolin		
Reporter ±1	Opponent ±1 +/	Reviewer ±1 4 4
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
+ ☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial s.
☐ 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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2011-11-03		
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Scorina	Guidelines

ight (Round no.):	5	_Room: _	3	Stage:	3	_ Problem no.: _	16
uror:	Juy	5	Signatur	e:	Fa	y	

• 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 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.: Autralia	Opp.: Hungary 5	Rev.: Kathan 5
Adity 5	Albel 5	Kathan 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
☐ Scientific approach ☐ Validity of conclusions	☐ Validity of conclusions	Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers :w
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner 🎖 🖟 🖟	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner 🎖 🌣 🎺	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression 🗡	Overall impression	Overall impression
Reporter ±1 -0-5	Opponent ±1	Reviewer ±1 6 + 5.5
Quality of experimental technique(s)	Response to the reporter's solution Diffrenchia net	Provides a thorough review of report and discussion
technique(s) Structure  □ Structure  □ Structure  □ 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 >> (No quantity 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	I had the
<ul> <li>References, proper citations of ideas and input of others</li> </ul>	defo of color but could not push france to evalue	This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report	repets ons	archive your partial sta
☐ Contribution to the discussion	& Four as general concepts	do not bend
Final Grade: Reporter	Final Grade: Onnonent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Round: Room: 3 Fight Assistants: Jaru Jutimoosik ; Rojnapa Tharamas

		Stage 1	T		Stage 2			Stage 3			Stage 4	
Juror Team	Rep	SW (	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Feng Song	7	7	6	5	5	5	4	6	9			
Andrei Klishin	9	6	6	8	5	5	5	6	8			
Volodymyr Kulinskyi	7	5	7	6	7	7	5	8	6			
Wordsom Kundhikanjana	2	7	6	7	b	6	5	6	6			
Stanislav Panos	7	7	8	7	6	7	5	7	7			
Joy Tan	Ь	7	6	8	7	7	5	6	7			W.
Acting Team Member	Andra's Lauko'	Lioba Heimbach	ke vin Zhang	Michael Rogenmoser	Aditya Sethi	Noel Laszló Plaszkó	Aditya Sethi	A'bel beregi	kathrin Laxhuber			
Rejected Problems												
Accepted Problem	13. Mag	netic Pena	dulum	4. Liq	uid Film 1	Mator	16. No	t and D	lar K			

Signature Fight Assistant: Jaru Jakimowsik Double-checked with Scoring Guidelines by second Fight Assistant (signature): Rojnapa Tharamas

Fight (Round no.): _	5	Room:	4	_Stage:/	Problem no.:	14
Juror: Kerry 1	Parke		Signatu	re: Ker	- PSV.	

• 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 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.

Amirhossen /	Chin Hot	Ann-Kathrin
Rep.: Ekahi. 5	Opp.: Leong. 5	Rev.: Rans. 5
	TAVE TAVE	
Physics ±3	Physics ±3	Physics ±3 -0.5
☐ Correct and relevant physics/	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach ✓	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions?	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers ?	Accurate answers	Accurate answers
Presentation ±1 +0.5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
		16 11 11 100
Reporter ±1 +0-5	Opponent ±1	Reviewer ±1 6 -0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partier 8.
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 Guidelines**

Fight (Round no.):	5 Room:	4 Stage:	Problem no.:
Juror: Michael	Smith s	ignature:	7.76

# 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 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.: Germany 5	Opp.: Maca 0 5	Rev.: Iran 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	Accurate answers	Accurate answers		
Presentation ±1 +0.3	Presentation ±1	Presentation ±1 40.5		
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner		
☐ Overall impression	Overall impression	Overall impression		
Reporter ±1 +0.3	Opponent ±1	Reviewer ±1 40.1		
<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 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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent		
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your partial st		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent Servised	Final Grade: Reviewer dafter IOC feedback and approved by EC on 2011-11-03		



Scoring G	iuidelines
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Fight (Round no.):	5 Room:	Stage:	Problem no.: 14
luror: Felicia	Ullstad	Signature: Felle	2 / Clud

• 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 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.: Germany Ann-Vet in Read 5	Opp.: Macao Chin Holk Lewing 5	Rev.: Ivan Anis howeld Ebidi 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 —
//\ /\ /\ /\ /		NEED.
Presentation ±1 0	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 +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 of the report + -	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	☐ Finds shortcomings or errors in the report + -	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions →	Relevance of the questions + -	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate →	☐ Contribution to the discussion ~	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial gra
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



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	ng o	UIU		

Fight (R	ound no.): _	_5_ F	Room:	4	Stage:	1	Problem no.:	14
luror: _	Gince	Exn	er	Signatur	e:	du		

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: Germany 5	Opp.: Massas 5	Rev.: Iran 5
Physics ±3	Physics ±3	Physics ±3
→ □ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
✓ ☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
√□ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	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 6 0
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, artial grades – please
☐ Novelty of the report		archive your partial g.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.): 5 Room	: 4 5	Stage: 1	Problem no.:
Juror: Go/cec Sanda	Signature	12	4

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

# An opposition should show that:

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

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

Rep.:5	Орр.:5	Rev.:
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics  Scientific approach  Validity of conclusions  Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Correct and relevant physics  Scientific approach  Validity of conclusions  Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Clear and understandable  Appropriate manner  Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak poir of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 6.2
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer vised after IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.): _	5	Room:	4	Stage: _	7	Problem no.:	
Juror: D. Ke	ller	_	Signatur	e: / N	TOR	iller	

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

# An opposition should show that:

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

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *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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- 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.: Germany 5	Opp.: Macao 5	Rev.:	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1 /	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner	
☐ Overall impression	Overall impression	Overall impression	
Reporter ±1 //	Opponent ±1	Reviewer ±1 //	
<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 of the report	Expresses own opinion about topics presented or discussed	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ 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 archive your partial grades – please	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03	



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Scoring	(suidel	lines

ight (Round no.):	5	Room:	4	Stage:	Z	Problem no.:	5
uror: D. Kei	1/er		Signatur	e: /	0.0	Tello	

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following *suggestions* to *add* to or *deduct* from the initial *5 points*.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: <u>Macao</u> 5	Opp.:	Rev.: <u>bernary</u> 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics	
☐ Scientific approach	Scientific approach	Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	Overall impression	Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1 4 4	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
<ul> <li>Explanation of formulae and symbols</li> </ul>	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 grad	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03	



Scoring	Guidelines

Fight (Round no.):	5	Room:	4	Stage:	2	Problem no.:	5
Juror: Golce	land	4	Signatur	e: _ /	6	ly	

• 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

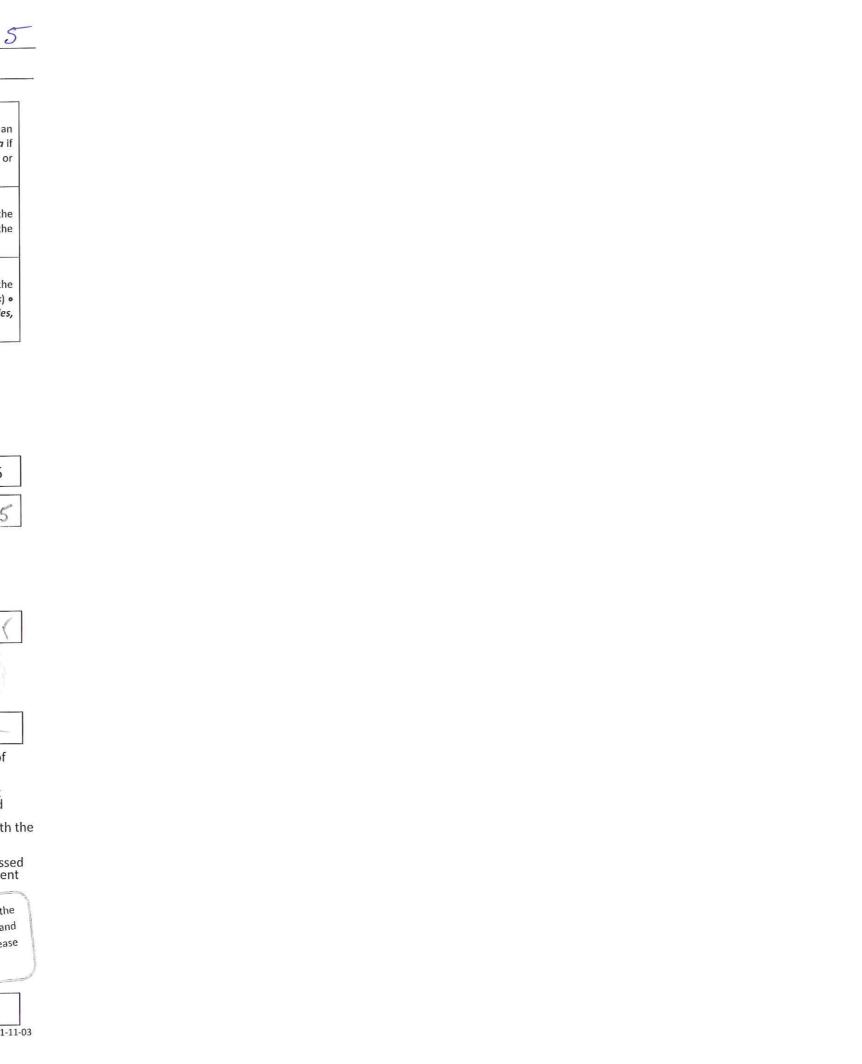
# An opposition should show that:

• 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:

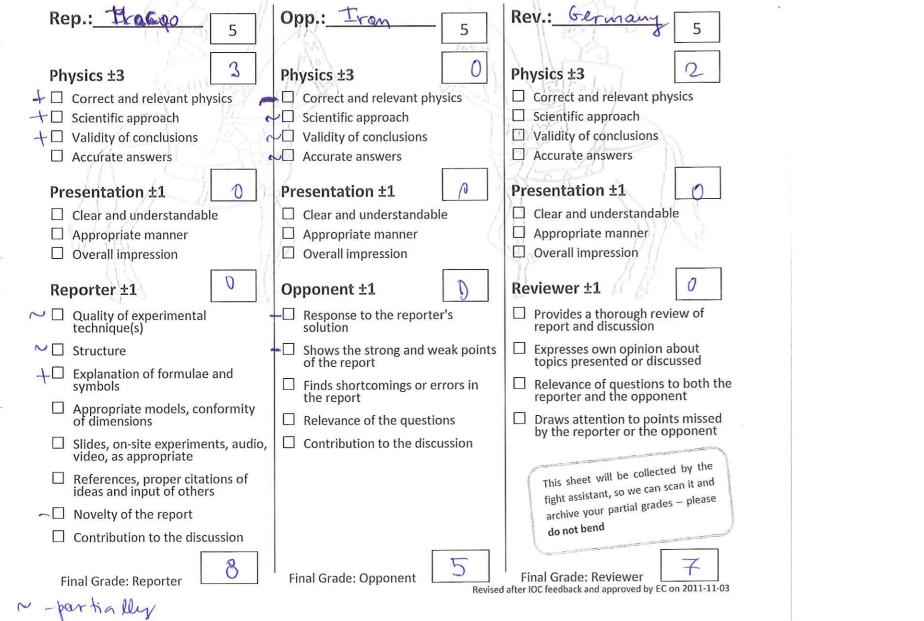
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following *suggestions* to *add* to or *deduct* from the initial *5 points*.
- Select each partial 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.: Maeas 5	Opp.: <u>Man</u> 5	Rev.: Germany 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 -qr	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
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial st
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



Scoring Guidelines	Fight (Round no.): 5 Room: 4 Stage: 2 Problem no.: 5  Juror: Ginva Exner Signature: 4
application of appropriate mathematics • reasonable e	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
	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) •	nary of the performances the <i>reporter</i> and <i>opponent</i> • the reviewer appreciated the the reviewer's <i>personal opinion</i> was in evidence ( <i>not</i> just <i>superficial observations</i> ) • and demonstrated, where possible, the reviewer's <i>understanding</i> of <i>concepts</i> , <i>theories</i> , 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</li> </ul>	deduct from the initial 5 points.

Don't punish missing answers when no	questions were posed of not illiaing shortco	mings if there were none to mid.
Rep.: Tracqo 5	Opp.: Iron 5	Rev.: Germany 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  Conclusion	✓☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 0
∼ ☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
➤ □ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
←□ Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
		archive your partial st
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



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Scarina	Guidelines

ight (Round no.):	5 Ro	om: 4	Stage:	2	Problem no.:	3
150 A 5	Ollst	ad Signati	ire: F	eles	in lle	id

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *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.: Macao 5	Opp.: (ran Yasamin Masaum 5	Rev.: Germany 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics →	☐ Correct and relevant physics→	☐ Correct and relevant physics ←
☐ Scientific approach —	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable→	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner ─	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 -0,5	Opponent ±1 $-0.7$	Reviewer ±1 4 + 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 ++
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions +-	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate ⁴	☐ Contribution to the discussion ★	by the reporter or the opponent
☐ References, proper citations of ideas and input of others +		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and stall grades – please
☐ Novelty of the report		archive your partial grade
☐ Contribution to the discussion +		do not bend
Final Grade: Reporter	Final Grade: Opponent Provised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Scoring Guidei	Scoring	Guidelines
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Fight (Round no.):	5	Room:	4	Stage:	2 P	roblem no.:	5
luror: Michae	2 3	mith	Signatur	e:	Mh	TM	

• 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 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.: Macao 5	Opp.: Iran 5	Rev.: Germany 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics	
☐ Scientific approach	Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	Accurate answers	
Presentation ±1 0,5	Presentation ±1	Presentation ±1 0.5	
☐ Clear and understandable	Clear and understandable	Clear and understandable	
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner	
Overall impression	Overall impression	Overall impression	
Reporter ±1 0.5	Opponent ±1	Reviewer ±1	
<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 of the report	Expresses own opinion about topics presented or discussed	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial grown	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent Servised	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03	



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Scoring	Guidei	iines

Fight (Round no.):	5	Room: _	4	Stage: _	2	Problem no.: _	5
Juror: Kemy	Parke	- :	Signature	e: Ec	1	Por	

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

# An opposition should show that:

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

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *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.: Sina Harting  Macao  5	Opp.: Yasamin Massumi 5	Rev.: Jingyi Xie. 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 -0-5	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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer  after IOC feedback and approved by EC on 2011-11-03



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Sco	orina	Guide	lines
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Fight (F	Round no.):	5	Room:	_4_	Stage:	3	Problem no.:	6	
Juror: _	Ginka	EXN	er	Signatur	e:	dy			

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following *suggestions* to *add* to or *deduct* from the initial *5 points*.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Iran 5	Opp.: MO 5	Rev.: DE 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 5	Opponent ±1	Reviewer ±1 6
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	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
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grow
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer  Jafter IOC feedback and approved by EC on 2011-11-03



Scoring Guidelines

Fight (Round no.): 5 Room: 4 Stage: 3 Problem no.: 6

Juror: Celeure Voudy Signature: 1

# A report should include:

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

#### An opposition should show that:

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

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

Rep.: nou 5	Opp.: Genay 5	Rev.: Macro 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
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.): 5	Room:	#	Stage: 3	Problem no.:	6
Juror: D. Keller		Signature	: //	Telle	

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *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.: berny 5	Rev.: <u>Macao</u> 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 6
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Project	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.): Room:	4 Stage: 3 Problem no.: 6
Juror: Keng Parker	Signature: Ku &.

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

# An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: Ghazal Naghdibak. 5  Tran	Opp.: Jonas Landgraf 5 Germany	Rev.: Philip Naderev 5 Pilagniton 5 Macao 1
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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ 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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial B.
☐ Contribution to the discussion	14	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Scoring Guidelines	Scoring	Guidelines
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ight (Round no.): _	5	Room:	4	Stage:	3	Problem no.:	6	
uror: Michael F	- 5	mith	Signature	. ~		MAN	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:

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Iran 5	Opp.: German/ 5	Rev.: <u>Macao</u> 5
Physics ±3 ☐ Correct and relevant physics	Physics ±3  Correct and relevant physics	Physics ±3  Correct and relevant physics
☐ Scientific approach ☐ Validity of conclusions	Scientific approach Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
☐ Accurate answers  Presentation ±1	Presentation ±1	Presentation ±1
<ul><li>☐ Clear and understandable</li><li>☐ Appropriate manner</li><li>☐ Overall impression</li></ul>	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 0.5	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 of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	and acted by the
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please
<ul><li>☐ Novelty of the report</li><li>☐ Contribution to the discussion</li></ul>		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer lafter IOC feedback and approved by EC on 2011-11-03



Scorina	Guidelir	nes

Fight (Round no.): _	5	_ Room: _	4	_ Stage: _	3	_ Problem no.:	6
Juror: Felici	a	Ullstale	Signatu	ire: Fe	lus	elle	ul

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following *suggestions* to *add* to or *deduct* from the initial *5 points*.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Iran Ghard Mohding 5	Opp.: Germany 5	Rev.: Macao Philip Naderer 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 1	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner —	☐ Appropriate manner	☐ Appropriate manner		
☐ Overall impression	Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1 0		
<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 of the report	Expresses own opinion about + topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	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 grow		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer  after IOC feedback and approved by EC on 2011-11-03		



Round: Room: 4 Fight Assistants: Ram Minjarden phan, Adithep Butrabari

		Stage 1			Stage 2	, , , , , , , , , , , , , , , , , , ,		Stage 3		1	Stage 4	T
Team Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Felicia Ullstand	7	4	5	3	4	6	4	5	5			
Michael F. Smith	5	5	7	6	5	6	Y	Ь	0			
Kerry Parker	7	3	4	4	5	5	4	4	4			
Daniel Keller	7	6	7	5	6	8	4	7	6			
Sondu Mirel Golce	n 7	4	5	4	5	6	U.	4	4			
Orjnka Exner	4	5	5	8	5	7.	5	5	5			
Acting Team Member	Ann-Katharn Aces	Chin Hok Leong	Amiathorsan Badi	Jingyi Kre	Yosamir M.	Sha Jelia Hartuny	Chasal Naghdibu	Jones Londgraf	Milip Nadosev L.			
Rejected Problems												
Accepted Problem	No. 14 (	Crirde of	Light.	No.5 Ti	so Ballo	ons,	No. 6 M	lagnes Gili	des		8	

Signature Fight Assistant: Raym Phin jaroenphan Double-checked with Scoring Guidelines by second Fight Assistant (signature): Advisor But ruland

35.	6	5 . 1 10
Scoring Guideline	Fight (Round no.): Room: Room: Room:	Signature:
application of appropriate mathematics • reas	theories and principles of the problem • an experimental technique to gather and receimental findings to draw suitable conclusions ble manner	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's unde appropriate mathematics presented • the oppoponent appreciated and highlighted the street	erstanding of the presented concepts, theories an onent critiqued the experimental technique used ngths and weaknesses of the report	nd <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controversia	ve summary of the performances the reporter are ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the reverse the reporter and the opponent	evidence (not just superficial observations) •
<ul> <li>The reporter, opponent and reviewer ea</li> <li>Consider the following suggestions to ac</li> <li>Select each partial grade from each section</li> </ul>	11	
Rep.: Poland 5	Opp.: Czech Rep 5	Rev.: Kenya 5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1  Clear and understandable	Physics ±3  Correct and relevant physics  Scientific approach  Validity of conclusions  Accurate answers  Presentation ±1  Clear and understandable	Physics ±3  ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers  Presentation ±1 ☐ Clear and understandable
☐ Appropriate manner ☐ Overall impression	Appropriate manner Overall impression Opponent ±1	Appropriate manner Overall impression  Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
<ul> <li>☐ Structure</li> <li>☐ Explanation of formulae and symbols</li> <li>☐ Appropriate models, conformity of dimensions</li> </ul>	Shows the strong and weak points of the report  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
<ul> <li>☐ Slides, on-site experiments, audio, video, as appropriate</li> <li>☐ References, proper citations of ideas and input of others</li> <li>☐ Novelty of the report</li> </ul>	☐ Contribution to the discussion	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please

Final Grade: Opponent

Final Grade: Reporter

Contribution to the discussion

	F 1 10
Room:	5 Stage: 1 Problem no.: 10
nn	Signature:
• an exn	planation of the observed phenomena • an
r and rec	ord data (or demonstrate the phenomena if
	d <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
	,
	ad opponent • the reviewer appreciated the evidence (not just superficial observations) •
, the rev	iewer's understanding of concepts, theories,
resenta	tion and for their specific role.
ts.	
oox. shortcor	mings if there were none to find.
V.	Rev.: Kenya 5
18.14	5
7,5	Physics ±3
A.	☐ Correct and relevant physics ☐ Scientific approach
	☐ Validity of conclusions
2	Accurate answers
3	Presentation ±1
(	☐ Appropriate manner ☐ Overall impression
/	16 18 17
	Reviewer ±1  Provides a thorough review of report and discussion
ooints	report and discussion  Expresses own opinion about topics presented or discussed
in	topics presented or discussed  Relevance of questions to both the reporter and the opponent
	800 BOOK
n	by the reporter or the opponent
	This sheet will be collected by the
	fight assistant, so we archive your partial grades – please
	do not bend
Poviso	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03
Kevised	arrei 100 reennack am approved by EC on 2011-11-03

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CCOKINA	Guida	linac
Scoring	GUIUCI	

ght (Round no.): _	5	_Room:	5	_ Stage:	1	Problem no.: 10	
uror: PETER	7E1	JEI	Signatu	re:	1	- 7/	

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

#### An opposition should show that:

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

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

Rep.: POLAND 5	Opp.: CEE CH RED 5	Rev.: KENYA 5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3  Correct and relevant physics  Scientific approach Validity of conclusions	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions
□ Accurate answers  Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Clear and understandable Appropriate manner Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1  Quality of experimental technique(s)	Opponent ±1  Response to the reporter's solution	Reviewer ±1
☐ Structure ☐ Explanation of formulae and	☐ 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
symbols  Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> <li>References, proper citations of ideas and input of others</li> </ul>	☐ Contribution to the discussion	This sheet will be collected by the
ideas and input of others  ☐ Novelty of the report ☐ Contribution to the discussion		This sheet will be conceed fight assistant, so we can scan it and archive your partial grades – please do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



Scol	rina	Gui	del	ines
	11 11 11 11 11			

Fight (Round no.):	5	Room:	5	Stage:	Problem no.:	10
Juror: Dina	IZa	dj_	Signatur	e:	Zadi-7	

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to 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 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.: Polan 5	Opp.: Clech 5	Rev.: kenya 5	
Robest	Pavla Beresova	Nathan	
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	
<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 of the report	Expresses own opinion about topics presented or discussed	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial s.	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer	



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Scoring	Guidel	lines
	UGIGG	

Fight (Ro	ound no.):	5 R	oom: <u>5</u>	_ Stage:	Problem no.: _	
Juror:	M.H.	Kwon	Signatu	ire:	Lmy.	

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: Radost 5	Opp.: Pasola 5	Rev.: Nathan 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
	2	NEED !
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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and produce - please
☐ Novelty of the report		archive your parties 8
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



1 (5)

# Scoring Guidelines

Fight (Ro	ound no.): 🥳	Room: 5 Stage:	Problem no.:
Juror:	Narit	Signature:	8

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:

☐ Contribution to the discussion

Final Grade: Reporter

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. Parla Beresova Radost Waszkiewicz Rev .: Wathan Antro Opp.: taba 0 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 0 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 Reviewer ±1 Opponent ±1 Reporter ±1 ☐ Provides a thorough review of ☐ Response to the reporter's ☐ Quality of experimental report and discussion technique(s) Expresses own opinion about topics presented or discussed ☑ Shows the strong and weak points ☐ Structure of the report ☐ Explanation of formulae and ☐ Relevance of questions to both the ☐ Finds shortcomings or errors in symbols reporter and the opponent the report ☐ Appropriate models, conformity ☐ Relevance of the questions ☐ Draws attention to points missed by the reporter or the opponent ☐ Contribution to the discussion ☐ Slides, on-site experiments, audio, video, as appropriate This sheet will be collected by the References, proper citations of ideas and input of others fight assistant, so we can scan it and archive your partial grades - please ☐ Novelty of the report do not bend

Final Grade: Opponent



# Scoring Guidelines

ight (Round no.): _	5	Room:	5	_ Stage:	Probler	n no.:	
uror: G. J	ennir	188	Signatu	re: 77	cs Jen	ning	2

# A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observe application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to comm 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 oppor appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the valid 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 review important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superj such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of 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 spec

• The reporter, opponent and reviewer ea		
Consider the following suggestions to accept and from each partial grade from each social acceptance.	dd to or deduct from the initial 5 points.  on and write it in the corresponding box.	//
	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Poland 5 Radost W 5	Opp.: Czech Rep. 5	Rev.: Kenya. 5
Physics ±3	Physics ±3 + ½	Physics ±3
<ul> <li>Correct and relevant physics</li> </ul>	O Correct and relevant physics	O 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 +025	Presentation ±1	Presentation ±1 0
Clear and understandable	E Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 + 02	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
E Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	Finds shortcomings or errors in the report	Relevance of questions to both reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	Draws attention to points misse
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponen
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 gre
Ontribution to the discussion		do not bend

Final Grade: Opponent

8	Signature: ST. CO. Jenning 2
and rec	planation of the observed phenomena • an word data (or demonstrate the phenomena if • an attempt to communicate difficult or
	d <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
was in e	ad opponent • the reviewer appreciated the evidence (not just superficial observations) • iewer's understanding of concepts, theories,
esenta	tion and for their specific role.
	1
s. ox.	
	mings if there were none to find.
Co.	Park Mary
7	Rev.: Kenya. 5
V 14	
1	Physics ±3
9	O Correct and relevant physics
	Scientific approach
	Validity of conclusions  Accurate answers
7	7/56B
1	Presentation ±1
1	② Clear and understandable
(	Appropriate manner     Overall impression
$\neg$	77
	Reviewer ±1
	Provides a thorough review of report and discussion
oints	Expresses own opinion about topics presented or discussed
in	Relevance of questions to both the reporter and the opponent
	Draws attention to points missed by the reporter or the opponent
1	
	This sheet will be collected by the
	archive your partial a
	do not bend
	5
Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Scoring Guid	delines	5
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ight (Round no.):	5	Room:	5	Stage:	2 Problem no.:	13
2/6	Fain	200000	Signatu		(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 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</li> </ul>	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Ged Rep 5	Opp.: Kenya 5	Rev.: Poland 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 +0/5
Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☐ Overall impression
Reporter $\pm 1$ $0,5$	Opponent ±1	Reviewer ±1 +95
Quality of 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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial Br
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Scoring	Guid	elines

ight (R	tound no.): _	5 Room:	
uror: _	PETER	JENEI	Signature:

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

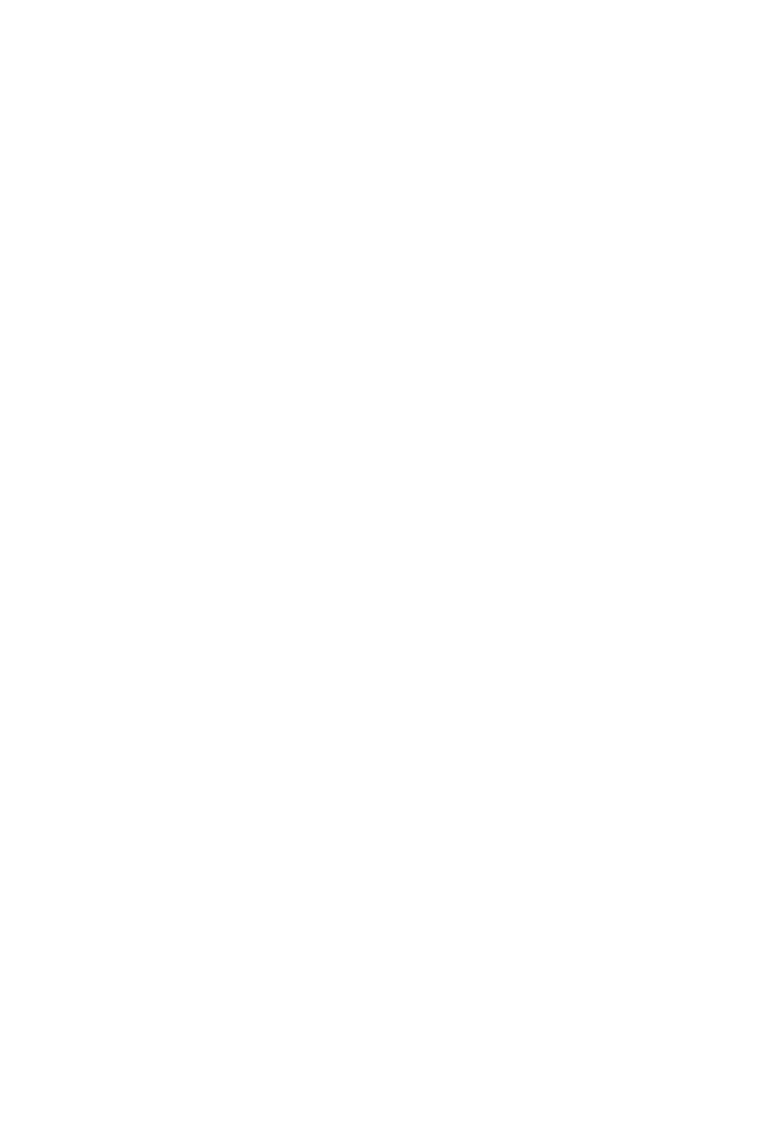
# An opposition should show that:

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

#### A review should show that:

- The 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.: CZECH REP 5	Opp.: KENYA 5	Rev.: POLIND 5
	A TOVE	
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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial s.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



Sco	rina	Guid	elines
	עטונונוניט		

ight (R	tound no.):	5	Room:	5	Stage:	2	Problem i	10.: _	13
uror: _	Dina	Mad		Signatur	e: 🚣	300	di'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:

- 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.: Czed 5	Opp.: Ken you 5	Rev.: Poland 5	
PAVEL	Solmman		
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	
	Procentation +1	Presentation +1	
Presentation ±1 O	Presentation ±1	Presentation 11	
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner	
☐ Overall impression	Overall impression	Overall impression	
Reporter ±1 0	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partier 8	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer	

Scorina	Guidelines

ight (Round i	no.):	Room:	_ Stage:	_ Problem no	.:
uror:	H. Kwo	Signatu	ire: 200	mm	*

• 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 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.

		. 1 (2)
Rep.: 5	Opp.: 5	Rev.: Anger 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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial size
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



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

# Scoring Guidelines

# A report should include:

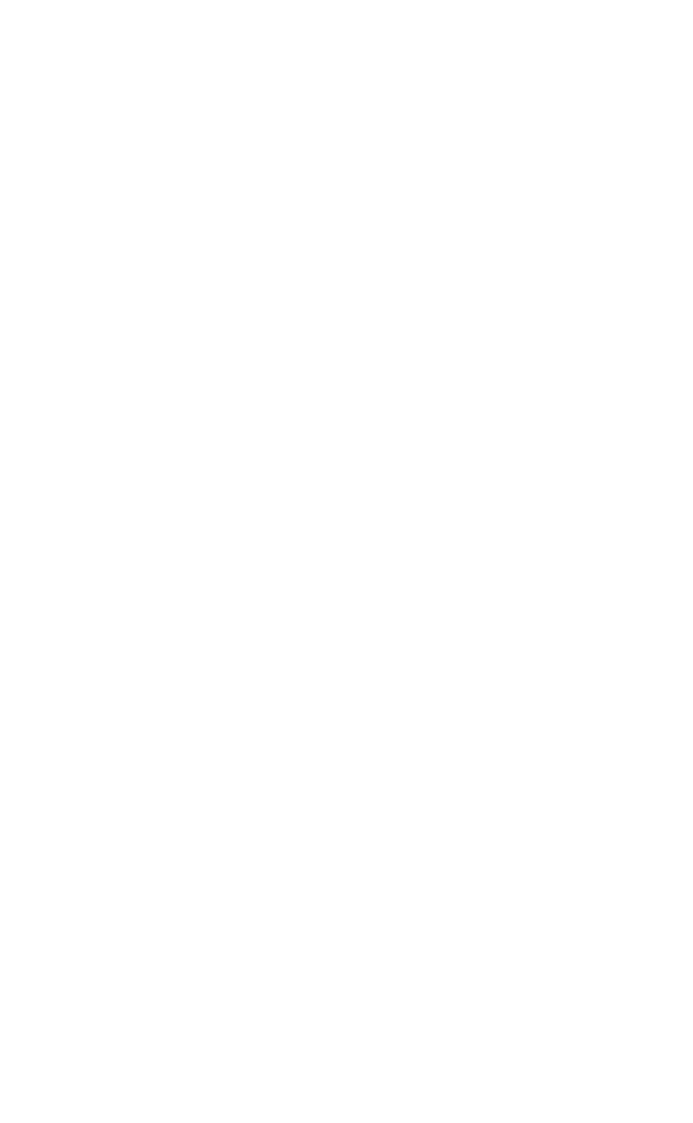
• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical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

# An opposition should show that:

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

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

<ul> <li>Don't punish missing 'answers' when no</li> </ul>	questions were posed or not finding shortco	mings if there were none to find.	
Rep.: Pavel Stepanek	Opp.: Kenya 5	Rev.: Po and 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☑ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	Overall impression	Overall impression	
Reporter ±1 0	Opponent ±1	Reviewer ±1	
<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 of the report	Expresses own opinion about topics presented or discussed	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your parties 8.	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent 5.	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03	



# Scoring Guidelines

Fight (Round no.): 5 Room: 5 Stage: 2 Droblem no. 13

# A report should include:

• a presentation of the appropriate concepts, theorie application of appropriate mathematics • reasonable appropriate) • linking of theoretical and experimen complex ideas in an effective and understandable man

# An opposition should show that:

• the opponent challenged the reporter's understand appropriate mathematics presented • the opponent opponent appreciated and highlighted the strengths of

# A review should show that:

Final Grade: Reporter

- the reviewer succeeded in giving an objective sumi important aspects (especially the controversial ones) such personal opinions were informative, non-trivial principles and appropriate mathematics used by the
- The grade for each of the three teams consists
- The reporter, opponent and reviewer each sta
- Consider the following suggestions to add to o
- Select each partial grade from each section and
- Don't nunish missing 'answers' when no questi

Don't punish missing answers when no	questions were posed of flot finding shorteo	miligs if there were none to mid.
Rep.: Czech Rep 5 Pavel Stepaner 5	Opp.: Kenya 5 Samman S	Rev.: Poland 5
Physics ±3	Physics ±3	Physics ±3
O Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
O Scientific approach	Scientific approach	Scientific approach
☑ Validity of conclusions	Validity of conclusions	☑ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers ?_!
		NEGE IN
Presentation ±1	Presentation ±1 -0.2	Presentation ±1
	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
<ul> <li>Explanation of formulae and</li> </ul>	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		archive your partial great
* Contribution to the discussion		do not bend

experimental technique to gather and re	planation of the observed phenomena • an cord data (or demonstrate the phenomena if s • an attempt to communicate difficult or
	nd <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
• the reviewer's personal opinion was in	and opponent • the reviewer appreciated the evidence (not just superficial observations) • viewer's understanding of concepts, theories,
of a partial grade for <i>physics, presentor</i> rt with 5 points.  r deduct from the initial 5 points.  d write it in the corresponding box.  ons were posed or not finding shortco	
o.: Kenya 5	Rev.: Poland 5
amman S	
sics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics
Scientific approach	Scientific approach  Validity of conclusions
/alidity of conclusions Accurate answers	Accurate answers 7_4
Courace answers	2/200
sentation ±1	Presentation ±1
Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner
Overall impression	<b>Q</b> Overall impression
ponent ±1	Reviewer ±1
Response to the reporter's colution	Provides a thorough review of report and discussion
Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
inds shortcomings or errors in he report	Relevance of questions to both the reporter and the opponent
Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Contribution to the discussion	
	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend
al Grade: Opponent	Final Grade: Reviewer 7

Sco	rina	Guideline	25

ight (Round no.):	5	Room: _	5	_ Stage: _	3	_ Problem no.: _	1	
uror: Kim	Frei	maus	Signatu	re:	The state of the s	B		

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

# An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: Konya 5	Opp.: Poland 5	Rev.: Cech Ref 5
Physics ±3	Physics ±3	Physics ±3 +0,5
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1 6,5	Presentation ±1
Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
□ Overall impression	Overall impression	☐ Overall impression
Reporter ±1	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
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8
☐ Contribution to the discussion	_	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Capulan	Cuida	1:1000
Scoring	Guiaei	ines

Fight (Round no.): _	5 Room:	5 Stage:	3	Problem no.: _	1
Juror: PITE 12	SENE!	Signature:	1	2	

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following *suggestions* to *add* to or *deduct* from the initial *5 points*.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: KENYA 5	Орр.: РОЦДИИ 5	Rev.: CZECH REP 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	☐ 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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial b.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Scarina	Guidelines
Scorning	Guidennes

Fight (Round no.): _	5	Room:	5	Stage:	3	Problem no.	: 1
luror: Dina Jo	Zadi		Signatur	e:	Pools	3	

• 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 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.: Son suke 5	Opp.: Poland 5	Rev.: akeh 5
kenya	Radest	Pavla
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
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	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
☐ Novelty of the report		archive your partial B
☐ 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	delines
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Fight (Round no.): _	S Room:	Stage: 3 Problem no.: _	
Juror: M.H.	Lwon	Signature: 21mm	

• 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

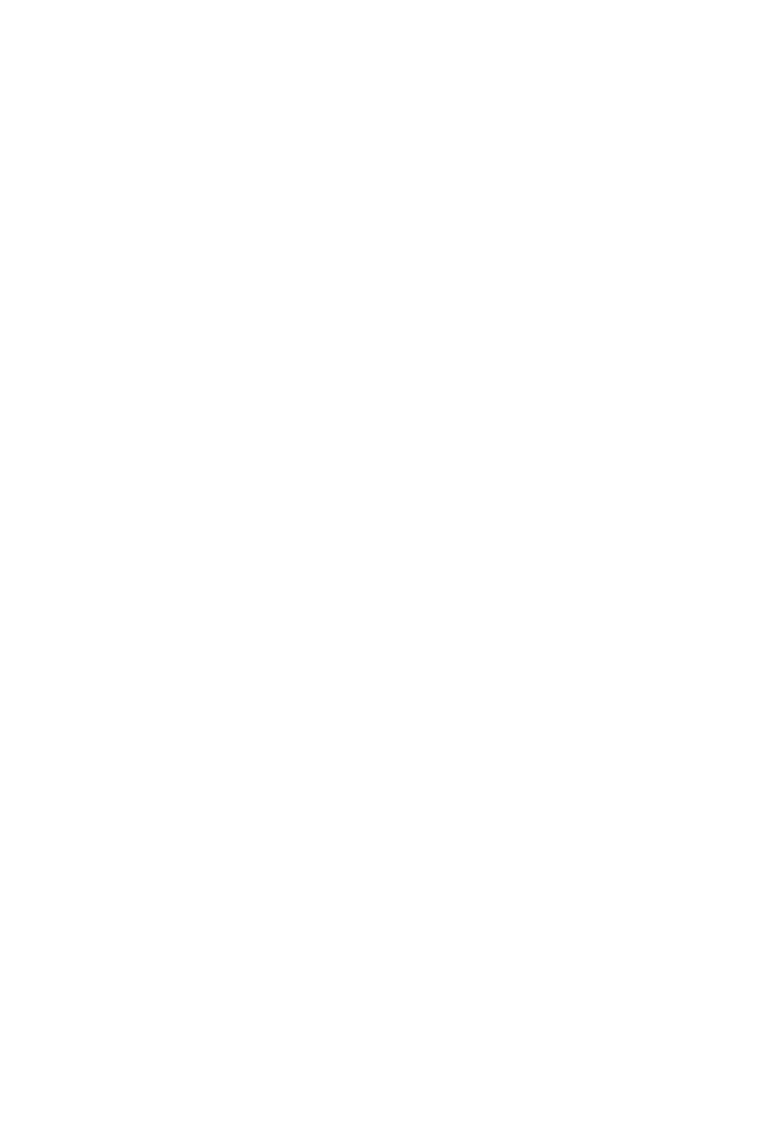
# An opposition should show that:

• 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 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.: Sousate 5	Opp.: Rodos 5	Rev.: <u>Pao</u> [ 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1\	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 of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial st
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Packing.
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# Scoring Guidelines

Fight (Ro	ound no.): 3 (5)	Room: <u>5</u>	Stage:	Problem no.:	1
luror:	Navit	Sign	ature:	modera	

# 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following *suggestions* to *add* to or *deduct* from the initial *5 points*.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Kenya 5	Opp.: Poland 5	Rev.: Czheck 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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



# **Scoring Guidelines**

ight (Round no.): _	5	_Room:	5	_ Stage: _	3	_ Problem no.	. 1
uror: G. Je	uni	ngis	Signatu	re:	W.	Skeun	11)

# A report should include:

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

# An opposition should show that:

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

- 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.: Kenya 5	Opp.: Poland Radost W 5	Rev.: Crech Rep. 5
Physics ±3	Physics ±3	Physics ±3 +0.5
■ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	E Scientific approach	<ul><li>Scientific approach</li></ul>
☐ Validity of conclusions		➡ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1 -0.2	Presentation ±1 +03	Presentation ±1 +0.2
O Clear and understandable	Clear and understandable	Elear and understandable
Appropriate manner	☑ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 -0.3	Opponent ±1 + 0 7	Reviewer ±1 4 + 0.3
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	<ul> <li>Finds shortcomings or errors in the report</li> </ul>	Relevance of questions to both the reporter and the opponent
<ul><li>Appropriate models, conformity of dimensions</li></ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ 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
<ul><li>Novelty of the report</li></ul>		archive your parties a
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

Round: S Room: Fight Assistants: Wanchaloem Pounsalvet

		Stage 1			Stage 2			Stage 3			Stage 4	
Team	Poland	Czech Rep.	Kenya	Czech lep.	Kenya	Poland	Kenya	Poland	Czech Rep.			D
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Kim Freimann	7	5	3	4	5	8	2	6	6			
Peter Jenei	7	5	5	5	3	8	5	8	7			
Dina Izadi	4	5	5	5	4	6	5	7	6			
Myeung Hoi Kwon	6	6	5	5	4	7	4	7	6			
Narit Triannak	~ 7	5	6	4	5	5	3	8	6			
Gavin Jennings	6	6	5	5	3	7	3	7	6			
Acting Team Member	Radost Maszkiewicz	Paula Bénesiona	Nathan Antrobus	Pavel Stepanek	Samman Vohra	Anna Wald	Sousuke Narabu	Radost Maszkiewicz	Paula Béresova			
Rejected Problems												
Accepted Problem	( Singi	ng blades of	grass	(3) Magne	tic Pendn	lum	1 Packi	ng				

# **Scoring Guidelines**

ight (Round no.): _	5	Room:	8	Stage	:: <u> </u>	Problem 1	10.:	11
uror: J.BAL		E s	ignatu	re:	An	B		

# A report should include:

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

# An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.

Don't punish missing answers when no	questions were posed of not miding shortest	
Rep.: CHINA 5	Opp.: TANWAN 5	Rev.: NIGERIA 5
Physics ±3  Correct and relevant physics  Scientific approach	Physics ±3  ☐ Correct and relevant physics ☐ Scientific approach	Physics ±3  Correct and relevant physics  Scientific approach
Validity of conclusions  Accurate answers	Validity of conclusions  Accurate answers	☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1 0.5	Presentation ±1 0.5
Clear and understandable Appropriate manner Overall impression	Clear and understandable Appropriate manner Overall impression	Clear and understandable  Appropriate manner  Overall impression
Reporter ±1 +0.5	Opponent ±1 $-0.5$	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please
Novelty of the report		archive your parties o
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 4 Revised	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



	Fight (Round no.): Room: _	Stage: / Problemmo.: //
Scoring Guidelines	S Juror: LARS GISLER	1 /- 11)
	Julion. Chille Office .	3514
A report should include:  • a presentation of the appropriate concepts, the application of appropriate mathematics • reasonates.	able experimental technique to gather and rec	ord data (or demonstrate the phenomena if
appropriate) • linking of theoretical and experin complex ideas in an effective and understandable	mental findings to draw suitable conclusions manner	• an attempt to communicate <i>unjicut</i> of
An opposition should show that: • the opponent challenged the reporter's understand appropriate mathematics presented • the oppone opponent appreciated and highlighted the strength	ent critiqued the experimental technique used a	d <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		the state of the
<ul> <li>the reviewer succeeded in giving an objective s important aspects (especially the controversial or such personal opinions were informative, non-triv principles and appropriate mathematics used by t</li> </ul>	nes) • the reviewer's <i>personal opinion</i> was in e vial and demonstrated, where possible, the revi	vidence (not just superficial observations) •
<ul> <li>The grade for each of the three teams consi</li> </ul>		tion and for their specific role.
<ul> <li>The reporter, opponent and reviewer each</li> <li>Consider the following suggestions to add</li> </ul>		
<ul> <li>Select each partial grade from each section</li> </ul>	and write it in the corresponding box.	
<ul> <li>Don't punish missing 'answers' when no qu</li> </ul>	estions were posed or not finding shortcor	nings if there were none to find.
Rep.: CHINA C	Opp: THAKANO	Rev.: NIGERIA
5	5	5
	Mol	Physics +2
10 c (11 PORV 10)	mysics ±3	Physics 13
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
Accorde diswells	, manufacture and the state of	7/2000
Presentation ±1 0.5 P	Presentation ±1	Presentation ±1
Cical dila dilacistandasia	Clear and understandable	Clear and understandable
- (77 V((7 · · · · · · · · · · · · · · · · · ·	Appropriate manner	Appropriate manner Overall impression
Overall impression	Overall impression	Overall Impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 0
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial b
☐ Contribution to the discussion		do not bend
8		5
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03

Sco	rina	Guidelines	S
9 9 9			~

ight (Round no.): _	5	_Room:	8	_ Stage:	Problem no.:	11
uror: KUMBR	ACU		Signatu	re: Me	dag	

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

# An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: 64110 1 5	Opp.: [HAILAN] 5	Rev.: NIGER (A 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
<i>₹(</i> ☐ Appropriate manner	Appropriate manner	Appropriate manner
→ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



Scoring Gui	idelines	
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ight (Round no.): S Room: S Stage: Problem no.: 11

# A report should include:

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

# An opposition should show that:

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

# A review should show that:

- The 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.: CHINA 5	Opp.: Thailand 5	Rev.: Nigeria 5	
Physics ±3	Physics ±3	Physics ±3  Correct and relevant physics	
Correct and relevant physics	Correct and relevant physics	Scientific approach	
☐ Scientific approach	Scientific approach	☐ Validity of conclusions	
☐ Validity of conclusions	☐ Validity of conclusions	Accurate answers	
☐ Accurate answers	Accurate answers	Accurate allswers	
Presentation ±1 +0.5	Presentation ±1	Presentation ±1	
☐ Clear and understandable	Clear and understandable	Clear and understandable	
☐ Appropriate manner	Appropriate manner	Appropriate manner	
Overall impression	Overall impression	Overall impression	
Reporter ±1 +(	Opponent ±1	Reviewer ±1	
Quality of 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	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partiture	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  I after IOC feedback and approved by EC on 2011-11-03	



Sco	ring	Guid	elines
900	0 0 0 0 9		

Fight (Round no.): _	5	Room:	8	Stage:	1	_ Problem no.:	
Juror: L. Gree	deru	h	Signatu	re: <u></u>	(Ci	veclerus	

• 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 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.: China 5	Opp.: Tou Land 5	Rev.: Migeria 5
Physics ±3	Physics ±3	Physics ±3 -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
Overall impression	Overall impression	
Reporter ±1 0.5	Opponent $\pm 1$ $0.5$	Reviewer ±1 0.5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial a
☐ 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 Guideline	Fight (Round no.): 5 Room:  Suror: ly MARTCHEN	
application of appropriate mathematics • reas	theories and principles of the problem • an exponental technique to gather and receimental findings to draw suitable conclusions ble manner	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's under appropriate mathematics presented • the opponent appreciated and highlighted the street	erstanding of the presented concepts, theories ar onent critiqued the experimental technique used ngths and weaknesses of the report	nd <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controversia	we summary of the performances the reporter all ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the revelop the reporter and the opponent	evidence (not just superficial observations) •
<ul> <li>The reporter, opponent and reviewer ea</li> <li>Consider the following suggestions to ac</li> <li>Select each partial grade from each sect</li> </ul>	1/	
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1  Clear and understandable  Appropriate manner	Presentation ±1  Clear and understandable  Appropriate manner	Presentation ±1  Clear and understandable  Appropriate manner
Overall impression  Reporter ±1  -\	Overall impression 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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	☐ Relevance of guestions to both the
Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		fight assistant, so we can be archive your partial grades – please

☐ Contribution to the discussion

Final Grade: Reporter

while experimental technique to gather and record data for demonstrate the phenomena * an ability experimental scheduleur to gather and record data for demonstrate the phenomena if immental findings to draw sultable conclusions * an attempt to communicate difficult or transner  tanding of the presented concepts, theories and principles * the opponent understood the ent critiqued the experimental technique used and questioned the validity of the data * the this and weaknesses of the report  summapy of the performances the reporter and opponent * the reviewer's personal quision was in evidence (not just superficial observations) * wide and demonstrated, where possible, the reviewer's understanding of concepts, theories, the reviewer's personal quision was in evidence (not just superficial observations) * wide and demonstrated, where possible, the reviewer's understanding of concepts, theories, the reviewer's understanding to concept the reviewer's understanding the reviewer's understan	Fight (Round no.): 5 Room:  Suror: Lyn Mactale Value   100	Stage: 1 Problem no.:
summary of the performances the reporter and opponent • the reviewer appreciated the mene) • the reviewer's personal apinion was in evidence (not just superficial observations) • wid and demonstrated, where possible, the reviewer's understanding of concepts, theories, the reporter and the opponent • the reviewer's understanding of concepts, theories, theories, the reviewer's understanding of concepts, theories, theories, theories, theories, the reviewer's understanding to concepts, theories, the review of the report and discussion    Accurate answers	able experimental technique to gather and recorn mental findings to draw suitable conclusions •	d data (or demonstrate the phenomena if
nes) a the reviewer's personal opinion was in evidence (not just superficial observations) evidand and emonstrated, where possible, the reviewer's understanding of concepts, theories, the reporter and the opponent sits of a partial grade for physics, presentation and for their specific role.  Sistor with 5 points.  Lord or deduct from the initial 5 points.  Land write it in the corresponding box.  Lestions were posed or not finding shortcomings if there were none to find.  Physics ±3  Correct and relevant physics  Scientific approach  Validity of conclusions  Accurate answers  Presentation ±1  Clear and understandable  Appropriate manner  Overall impression  Provides a thorough review of report and discussion  Shows the strong and weak points of the report  Finds shortcomings or errors in  Relevance of questions to both the	nt critiqued the experimental technique used an	
Start with 5 points.   to or deduct from the initial 5 points.   to and write t in the corresponding box.   uestions were posed or not finding shortcomings if there were none to find.	nes) • the reviewer's <i>personal opinion</i> was in evi iial and demonstrated, where possible, the review	dence (not just superficial observations) •
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1  Clear and understandable Appropriate manner Overall impression  Opponent ±1  Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in  Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1  Clear and understandable Appropriate manner Overall impression  Reviewer ±1  Provides a thorough review of report and discussion  Expresses own opinion about topics presented or discussed  Relevance of questions to both the	start with 5 points. to or deduct from the initial 5 points. and write it in the corresponding box. estions were posed or not finding shortcomi	ngs if there were none to find.
Presentation ±1  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  Presentation ±1  Clear and understandable  Appropriate manner  Overall impression  Reviewer ±1  O  Provides a thorough review of report and discussion  Expresses own opinion about topics presented or discussed  Relevance of questions to both the	hysics ±3  Correct and relevant physics Scientific approach Validity of conclusions	Correct and relevant physics  Scientific approach  Validity of conclusions
<ul> <li>□ Response to the reporter's solution</li> <li>□ Shows the strong and weak points of the report</li> <li>□ Expresses own opinion about topics presented or discussed</li> <li>□ Finds shortcomings or errors in</li> <li>□ Relevance of questions to both the</li> </ul>	resentation ±1  Clear and understandable  Appropriate manner	Presentation ±1  Clear and understandable  Appropriate manner
<ul> <li>Shows the strong and weak points of the report</li> <li>□ Expresses own opinion about topics presented or discussed</li> <li>□ Finds shortcomings or errors in</li> <li>□ Relevance of questions to both the</li> </ul>	Response to the reporter's	Provides a thorough review of
☐ Finds shortcomings or errors in ☐ Relevance of questions to both the	Shows the strong and weak points	☐ Expresses own opinion about
THE PERIOR FOR THE PROPERTY OF THE PROPERTY OF THE PERIOR	_ ' l.	
Relevance of the questions Contribution to the discussion  Teporter and the opponent  Draws attention to points missed by the reporter or the opponent	Relevance of the questions	,
This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend  Final Grade: Opponent  Final Grade: Reviewer	1 \	fight assistant, so we do not bend archive your partial grades – please do not bend

Scoring G	uidelines	5
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ight (Round no.): _	5	_Room:	8	Stage: Z	Problem	no.: 10
uror: J.BAL	Com	BR	Signatur	e: £7	- Bal	

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

- 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.: THAILAND 5	Opp.: NISERIA 5	Rev.: CHINA 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics →	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	.□ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		archive your partial by
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 7

Scoring	Guidel	lines

ight (Round no.): _	5	Room:	8	_ Stage	2	_ Problem no.: _	10
uror: LARS G	s.l.	A)	Signati	ure:	lu	a Col	

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to 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 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.: THAILAND 5	Opp.: NIGERA 5	Rev.: CHINA 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression /	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 D.5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial gre
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 2	Final Grade: Reviewer



# Scoring Guidelines

ight (Round no.):	8 Stage:	2 Problem no.:	10
uror: KUNDRACK	Signature:	herara	4_

#### A report should include:

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

# An opposition should show that:

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

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

Rep.: THAILAN 5	Opp.: NIGER (A 5	Rev.: GHINA 5
Physics ±3	Physics ±3	Physics ±3 42
☐ 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 +00	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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ 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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



# **Scoring Guidelines**

Fight (Round no.): F Room: Stage: Problem no.: 10

Juror: TATNEWS, CHAN Signature:

# A report should include:

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

# An opposition should show that:

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

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

Rep.: 5	Opp.:5	Rev.:
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	Scientific approach	Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	✓ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 +0.5	Opponent ±1	Reviewer ±1 4 4
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	☐ 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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial g.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.): 5 M Room:	8 st	age: 2	Problem no.:	
Juron: L. Grosleruk	Signature:	00	westernel	

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

# An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.

Physics ±3  ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions  ☐ Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions  ☐ Validity of conclusions	ch
□ Accurate answers □ Accurate answers □ Accurate answers □ Accurate answers □ Presentation ±1 □ Presentation ±1	5
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression  ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression  ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression  ☐ Opponent ±1  ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression ☐ Overall impression	nner
Quality of experimental technique(s) Response to the reporter's solution Provides a thoro report and discussion	ugh review of
☐ Structure ☐ Shows the strong and weak points of the report ☐ Expresses own of the report ☐ Finds shortcomings or errors in ☐ Relevance of que	or discussed estions to both the
The report  ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio, ☐ Contribution to the discussion  ☐ The report reporter and the report of the questions of the questions by the reporter of the report reporter and the report report reporter and the report re	to points missed or the opponent
video, as appropriate  References, proper citations of ideas and input of others  This sheet will be fight assistant, so	e collected by the we can scan it and tial grades – please
□ Novelty of the report □ Contribution to the discussion  Final Grade: Reporter  Final Grade: Opponent  Final Grade: Review archive your part do not bend  Final Grade: Review Final Grade: Review Revised after IOC feedback and approximately approximately 100 feedback and 100 feedback an	wer 7



Scoring Guidelin	Fight (Round no.): 5 Room:  By Use teneror	Stage: 2 Problem no.: (0)
application of appropriate mathematics • reas	theories and principles of the problem • an exponential technique to gather and recommental findings to draw suitable conclusions ble manner	cord data (or demonstrate the phenomena if
	erstanding of the presented concepts, theories ar onent critiqued the experimental technique used ngths and weaknesses of the report	
important aspects (especially the controversia	ve summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the revelop the reporter and the opponent	evidence (not just superficial observations) •
<ul> <li>The reporter, opponent and reviewer ea</li> <li>Consider the following suggestions to ac</li> <li>Select each partial grade from each section</li> </ul>	ion and write it in the corresponding box. questions were posed or not finding shortcome.  Onn: Of Cia	
The neserthing that of	en Elusade	1 4: 5 5
Physics ±3	Physics ±3	Physics ±3 +2
☐ Correct and relevant physics☐ Scientific approach	☐ Correct and relevant physics☐ Scientific approach	☐ Correct and relevant physics☐ Scientific approach
☐ Validity of conclusions	Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	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
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	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 grow
☐ Contribution to the discussion		do not bend

Final Grade: Reporter

Final Grade: Reviewer

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

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Fight (Round no.): _	5	Room:	8	Stage:	3	Problem no.	6
Juror: J-6A		BE	Signatur	e: <b>(</b>	42	5_	

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

# An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theorie 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</li> </ul>	questions were posed or not finding shortcor	mings if there were none to find,
Rep.: NLERM 5	Opp.: CHINA 5	Rev.: ANNAN 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☑ Validity of conclusions	✓ ✓ Validity of conclusions
Accurate answers	Accurate answers	Accurate answers
Presentation ±1 + 0.5	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 -0.5	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		archive your partial a
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

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Fight (Round no.): _	5	_ Room:	8	Stage:	3 Pro	oblem no.:	6
luror: LARS GI	Siê	<i>N</i>	Signat	ure:	Car	660	~

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

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Rep.: NIGERIA 5	<b>Орр.:</b> Си по А 5	Rev.: Thalland 5
\ \X\=\\	IM INDE	
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 -0.5	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak 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> </ul>	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
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial B
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer  I after IOC feedback and approved by EC on 2011-11-03



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ight (Ro	ound no.): _	5	Room:	8	Stage:	3	_ Problem no.:	6
	KUND	RALL	12	Signatur	re:	Us	udra	3

• 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 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.: NIGERIA 5	Opp.: <u>C4/N</u> 5	Rev.: THILAND 5
Physics ±3	Physics ±3	Physics ±3  Correct and relevant physics
Correct and relevant physics	Correct and relevant physics Scientific approach	Scientific approach
☐ Scientific approach ☐ Validity of conclusions	Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	│ ☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 -1	Opponent ±1	Reviewer ±1 6 +03
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grow
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



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

Juror: LATINENG CHAN 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 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.

10 10 11		-1
Rep.: Nigeria 5	Opp.: CH INA 5	Rev.: THAITAND 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 0
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 0	Opponent ±1	Reviewer ±1
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ 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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partier o
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Scoring Gu	idel	ines
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Fight (Round no.):	5	Room:	8	Stage:	3	Problem no.:	6	
<sub>Juror:</sub> L. Gla	de	- ,	Signatu	S	Cl	Western	L	

• 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 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.: Vigeno 5	Opp.: Chima 5	Rev.: hulconol 5
Physics ±3	Physics ±3	Physics ±3 -1
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	.□ Accurate answers
Presentation ±1 0.5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
□ Overall impression	Overall impression	Overall impression
Reporter ±15	Opponent ±1	Reviewer ±1 0.5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and grades – please
☐ Novelty of the report		archive your partial B
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent S	Final Grade: Reviewer  after IOC feedback and approved by EC on 2011-11-03



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Scoring	Guiaei	ines

Fight (Round no.): _	5	_Room: _	8	_ Stage: _	3	Problem no.:	
Juror: Leyn W	ARTC	ue Mo	Signatu	ıre:/		M	

• 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

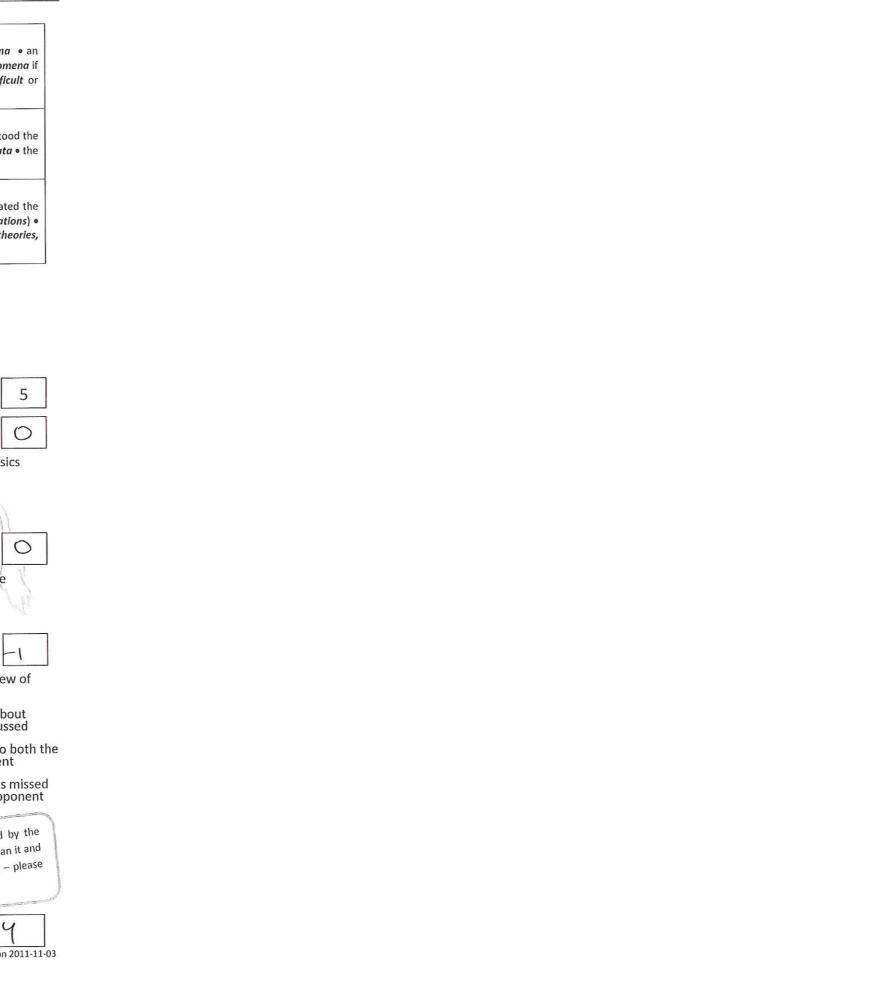
# An opposition should show that:

• 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 grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

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Ren. Vigeria	Chim,	Thailand
Rep.:	Opp.: Kehan Lu 5	Rev.: panithan 5
Abdullahi		Jee Rasu noku
	Mol	
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	Overall impression	Overall impression
Reporter ±1 —\	Opponent ±1	Reviewer ±1 6 6
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	Relevance of guestions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial B
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03
	Kevised	alter for reempack and approved by EC on 2011-11-03



		Stage 1			Stage 2			Stage 3		Stage 4		
Team	Chrim	Thurland	Migeria	Thailand	Nigerla		Migeria.	Chaina	Thailand			
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
John Balcombe (chair)	4	4	5	4	4	7	3	A	6			
Lars Gislen	8	b	8	5	2	7	4	7	7			
František kundracih	8	4	3	4	3	7	3	6	6			
Lat Neng chan	7	5	4	Ь	Le	8	3	8	5			
Leszek Gladczuk	6	4	3	4	か	7	B	5	ħ			
llya Martchenko	6	4	5	5	b	-9	2	7	4			
Acting Team Member	Kehan Lu	Dian Pamakagan	Went shifte.	Chanatip Thanasarnthma	Philip Flushade.	Jiahong Yi	Ahmad Abdullahi	Kehan Iw	Panithan Jeerasu wanaku			
Rejected Problems											,	
Accepted Problem	(11)			(10)			(13)					

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

C	Cuidalina
Scoring	Guidelines

	5		Q	<b>C</b> :	D. H.	14	
Fight (Round no.):		_Room: _	. (	Stage:	Proble	em no.:	_
Turor REGN	ER		Signatuu	re. W	2~		

• 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 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.: Ohr cine	Opp: homania 5	Rev.: Massia 5
Peligh Engune 5	Ance Golis Invi	Nilwloup ibirge lun
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 6 +0,5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties go
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Canada	Cuida	
Scoring	Guiaei	unes

ight (Round no.): _	5	Room: _	9	_Stage: _	1	Problem no.:	4
luror: Pornat Was		kusmick	gnatu	re:	ho	Do	/

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: Ukraine 5	Opp.: Romania 5	Rev.: <u>Rossia</u> 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	☐ Accurate answers	
Presentation ±1	Presentation ±1 + \$2.5	Presentation ±1	
Clear and understandable	Clear and understandable	Clear and understandable	
Appropriate manner	Appropriate manner	Appropriate manner	
Overall impression	Overall impression	Overall impression	
Reporter ±1.	Opponent ±1	Reviewer ±1 # #1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	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	
<ul> <li>References, proper citations of ideas and input of others</li> </ul>	5	This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial B.	
Contribution to the discussion		do not bend	
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer lafter IOC feedback and approved by EC on 2011-11-03	



	Fight (Round no.): 5 Roon	n: 9 Stage: / Problem no.: 4
Scoring Guideline	S Juror: YF YFO	Signature:
A report should include:  • a presentation of the appropriate concepts, application of appropriate mathematics • reason appropriate) • linking of theoretical and experimental ideas in an effective and understandal.	onable experimental technique to gather and erimental findings to draw suitable conclusion	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's unde appropriate mathematics presented • the opponent appreciated and highlighted the strength	onent critiqued the experimental technique us	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controversial	I ones) • the reviewer's personal opinion was trivial and demonstrated, where possible, the	and opponent • the reviewer appreciated the n evidence (not just superficial observations) • reviewer's understanding of concepts, theories,
<ul> <li>The reporter, opponent and reviewer ea</li> <li>Consider the following suggestions to ac</li> <li>Select each partial grade from each section</li> </ul>		
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 point of the report ☐ Finds shortcomings or errors in	
<ul> <li>□ Appropriate models, conformity of dimensions</li> <li>□ Slides, on-site experiments, audio, video, as appropriate</li> </ul>	the report  Relevance of the questions  Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
<ul> <li>□ References, proper citations of ideas and input of others</li> <li>□ Novelty of the report</li> </ul>		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

Room: 9 Stage: Problem no.: 4		
Signature:		
Signature		
an explanation of the observed phenomena • an		
and record data (or demonstrate the phenomena if clusions • an attempt to communicate difficult or		
ories and principles • the opponent understood the used and questioned the validity of the data • the		
e used and questioned the valuaty of the water the		
orter and opponent • the reviewer appreciated the		
was in evidence (not just superficial observations) • the reviewer's understanding of concepts, theories,		
Company of the second		
esentation and for their specific role.		
ox.		
hortcomings if there were none to find.		
Rev.: Nikolay 5		
Physics ±3  Correct and relevant physics		
☐ Scientific approach		
☐ Validity of conclusions ☐ Accurate answers		
Presentation ±1 +/		
Clear and understandable		
☐ Appropriate manner ☐ Overall impression		
Reviewer ±1 +/		
Provides a thorough review of report and discussion		
oints Expresses own opinion about topics presented or discussed		
1		
reporter and the opponent		
Draws attention to points missed by the reporter or the opponent		
This sheet will be collected by the		
This sheet will be collected by fight assistant, so we can scan it and archive your partial grades – please		
do not bend		
Final Grade: Poviouer		
Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-03		

# **Scoring Guidelines**

Fight (Round no.):	S Room:	Sta	ge: <u>1</u>	Problem no.:	14
Juror: TATY ANA	6.5.	Signature:	TOS	>	

#### A report should include:

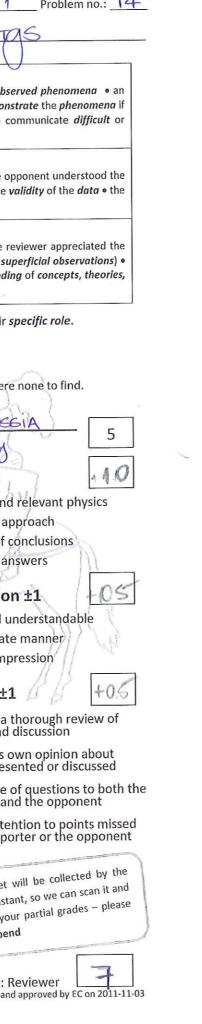
• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical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

1 1 11.		11 20 1
Rep.: UKRAINE 5	Opp: eomania  Anca Goldis  5	Rev.: PUSSIA 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics -015	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	Validity of conclusions -0 25	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
	i resentation 22	
☐ Clear and understandable	Clear and understandable	☑ Clear and understandable
☐ Appropriate manner	Appropriate manner - 0 25	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 6 +0.5
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, acrtial grades – please
☐ Novelty of the report		fight assistant, so we can see archive your partial grades – please do not bend
☐ Contribution to the discussion		do not bene
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer





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Fight (Round no.):	5	_Room:	9	_ Stage: _	1	_ Problem no.:	14
luror: Zuxana	Coca	lová	Signatu	ıre:	6	anlina	

• 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:

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- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: UKRAINE 5	Opp.: ROMANIA 5	Rev.: RUSSIA 5
Physics ±3	Physics ±3  Correct and relevant physics	Physics ±3  Correct and relevant physics
☐ Correct and relevant physics☐ Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 3	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.): _	5	_ Room:	9	Stage:	P	roblem no.: _	14	
wor Mothas A	rle	Mon	Signatur	. M.	A			

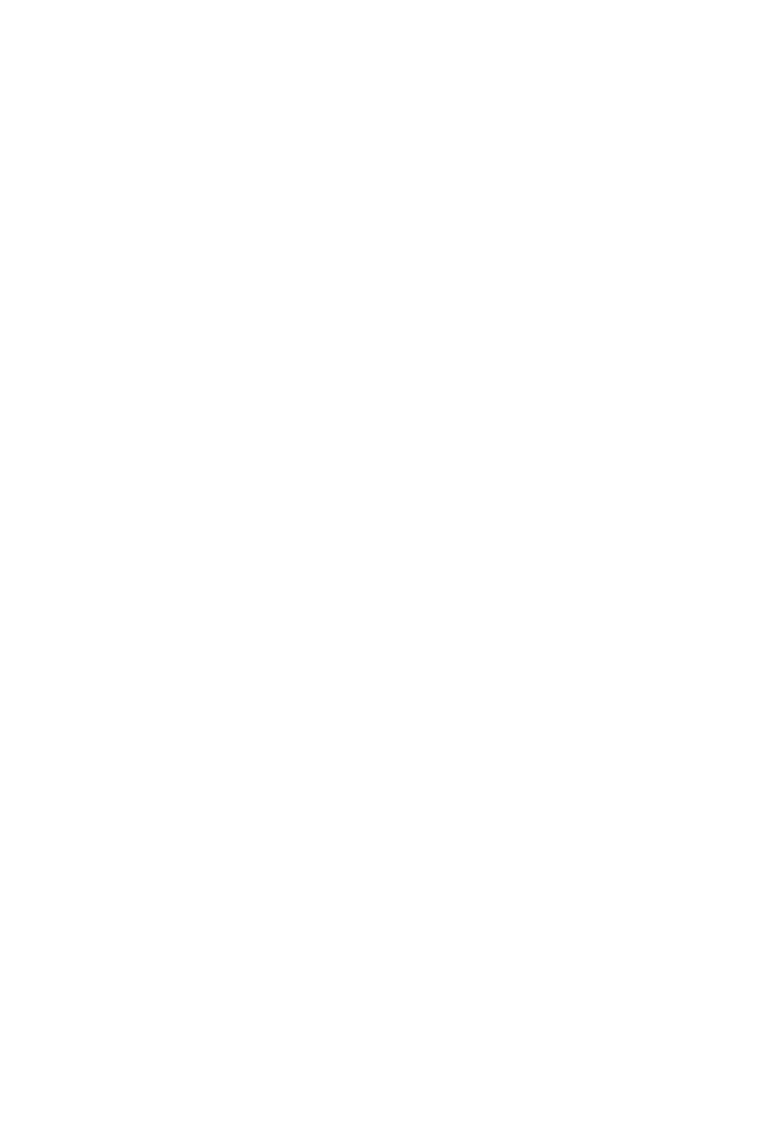
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#### An opposition should show that:

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

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- 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.

	, 18	1
Rep.: Ulvaine 5	Opp.: Romania 5	Rev.: Ruma 5
Physics ±3 why differen? +1	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 Too wh	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 +0.5
Quality of experimental technique(s)	Response to the reporter's + - solution	Provides a thorough review of report and discussion
☐ Structure —	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	Relevance of questions to both the
	the report	reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report →		archive your partial grad
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



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	y U		

5	-	9		1		6	
ight (Round no.):	Room: _	S	tage: _	4	Problem no.	.:	-
uror: REGNER	L S	ignature:	IL	ac			

• 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:

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

Don't punish missing answers when no	questions were posed of flot infamily shorted	Million Mele Hele Hele
Rep.: Romanie 5	Opp: Pussia 5	Rev.: Whome 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
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partier a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03

# **Scoring Guidelines**

ight (Round no.): _	₩5 Room: _	9	_ Stage: _	2	_ Problem no.:	6 (Magons
t with	+ 1			hi	5 25	glider)

#### 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

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- 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.: Romania 5	Opp.: Russia 5	Rev.: Ukraine 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	Clear and understandable
☑ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 -0.5	Opponent ±1	Reviewer ±1 6 -0.5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate no exp. video	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  after IOC feedback and approved by EC on 2011-11-03



Scoring G	iuidelines
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Fight (Round no.):	Room: 9 Stage: 4	Problem no.: 6
lurar: YE YEO	Signature:	( Jus

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.

	questions were posed or not finding shortco	mings if there were none to find.
Romania	Lussia	Uxrand
Rep.: Hovia	Opp.: Vitalio	Rev.: Nikita 5
5	5	
	Mol	1/2
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
		455B
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
		11 11 11 11
Reporter ±1	Opponent ±1	Reviewer ±1 4 4 1/2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	Relevance of the questions	
	e e e e e e e e e e e e e e e e e e e	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	the the
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial B
☐ Contribution to the discussion		do not bend
7		7
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



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ight (	Round no.):	5	_Room:	9	Stag	ge:2	_ Problem no.:	6	
uror:	TATYANA	1 6	.6.	Signatur	e:	TAS	Z I		_

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: pomania	Opp.: EUSGIA 5	Rev.: OKRANC 5
HORIA MAGUEE 5	VITALLI MATIONIN 5	NIKITA ROCO VO V 5
12.00	Mol	
Physics ±3	Physics ±3	Physics ±3
□ Correct and relevant physics → 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 → 0 →	Correct and relevant physics +0.35	Correct and relevant physics
☐ Scientific approach	Scientific approach +0.5	Scientific approach
☐ Validity of conclusions	☑ Validity of conclusions +0 🤫	☑ Validity of conclusions
Accurate answers + 0.26	Accurate answers	Accurate answers
		1 x 5 5 .   [
Presentation ±1	Presentation ±1	Presentation ±1 +0.5
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	
☐ Overall impression	Overall impression	Overall impression
		11. 11/2
Reporter ±1	Opponent ±1	Reviewer ±1 4 0.5
Quality of experimental technique(s)	Response to the reporter's	Provides a thorough review of report and discussion
	solution	
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report	Relevance of questions to both the +0 25
100 Total Control Control	the report X	reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio,	☐ Contribution to the discussion	by the reporter or the opponent
video, as appropriate		llocted by the
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial s.
☐ Contribution to the discussion		do not bend
		A
Final Cradas Banartar	Final Grade: Opponent	Final Grade: Reviewer
Final Grade: Reporter	Revised	after IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.):	5	_ Room:	9	_ Stage: _	2	_ Problem no.:	6	
luror: Zuzana	0	L .		re:	6	anlina		

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

# An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: Romania 5	Opp.: Russia 5	Rev.: Ukraine 5	
	/ MV H		
Physics ±3	Physics ±3 2,5	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 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	
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partier a	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent Revised	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03	



Sco	rina	Guide	lines
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Fight (Round no.): _	>	Room: _	l	Stage:	4	_ Problem no.:	6
luror Matties	Ay	lessos	ignatur	e. V	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

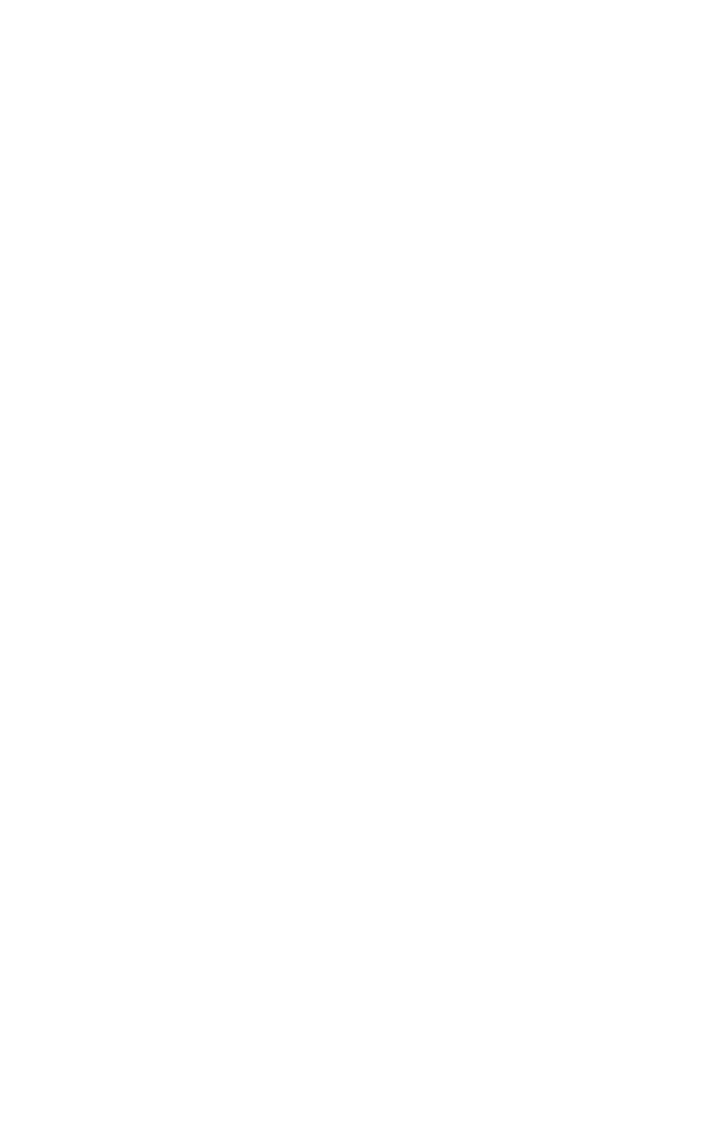
## An opposition should show that:

• 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 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

Don't punish missing answers when no	questions were posed of flot finding shorted	inings if there were none to find.
Rep.: Romania 5	Opp.: Russia 5	Rev.: Uhraine 5
Physics ±3 +2	Physics ±3 +2	Physics ±3 +1,5
☐ Correct and relevant physics ↓	Correct and relevant physics 1	☐ 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 4 4 2015
<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 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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial B
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



Scorina	Guidelines

ight (Round no.):	Room:	g s	tage:	3 Pro	blem no.: _	13
uror: LEQUER		Signature:	ho	por	~	

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

#### An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.

o Don't punish missing answers when no	questions were posed of flot finding shorteon	mings it there were none to mina
Rep.: Musico 5	Opp: Uhrsin 5	Rev.: Romanie 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	.□ Accurate answers
Presentation ±1 +0,5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 40,5
<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 of the report	Expresses own opinion about topics presented or discussed
<ul><li>Explanation of formulae and symbols</li></ul>	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> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer dafter IOC feedback and approved by EC on 2011-11-03



Scoring	Guidel	lines

Fight (Round no.):	5	Room: _	9	_ Stage: ۓ	Pi	roblem no.:	B
luror: Pornrat h	Vaftana	kasinic	4 Signatu	re:	mi	25	

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

## An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and 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.: Russia 5	Opp.: Utraine 5	Rev.: Romainia 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 +0.5	Opponent ±1	Reviewer ±1 8 4 +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, as trial grades – please
☐ Novelty of the report		archive your partial give
☑ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



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Scoring Guideline	00	Signature: Problem no.: /3
(CON)	7 /	
A report should include:	theories and principles of the problem • an exp	langtion of the observed phenomena • an
application of appropriate mathematics • reas	onable experimental technique to gather and rec erimental findings to draw suitable conclusions	ord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's under appropriate mathematics presented • the opponent appreciated and highlighted the street.	erstanding of the presented concepts, theories an onent critiqued the experimental technique used a ngths and weaknesses of the report	d <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
important aspects (especially the controversia	ne summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the revery the reporter and the opponent	evidence (not just superficial observations) •
The grade for each of the three teams co	onsists of a partial grade for physics, presenta	tion and for their specific role.
• The reporter, opponent and reviewer ea	ch start with 5 points.	
Consider the following suggestions to account to a		1
<ul> <li>Select each partial grade from each section</li> <li>Don't punish missing 'answers' when no</li> </ul>	on and write it in the corresponding box. questions were posed or not finding shortcom	mings if there were none to find.
Runnia	Ukraine	Romania
Rep.: Vitalit	Opp.: Aelnyk 5	Rev.: Dimitrie 5
	Mo	
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
	Tresentation 22	☐ Clear and understandable
Clear and understandable	Clear and understandable  Appropriate manner	Appropriate manner
☐ Appropriate manner ☐ Overall impression	Overall impression	Overall impression
Overall Impression	Overdirimpression	
Reporter ±1 + 1/2	Opponent ±1	Reviewer ±1 4
<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 of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	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> </ul>	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

Scoring Guidelin	Fight (Round no.): 5 Room:  Juror: 700	9 Stage: 9 Problem no.: 13
application of appropriate mathematics • reas	theories and principles of the problem • an expensionable experimental technique to gather and receimental findings to draw suitable conclusionable manner	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's underpropriate mathematics presented • the oppopponent appreciated and highlighted the street	erstanding of the presented concepts, theories are onent critiqued the experimental technique used ngths and weaknesses of the report	nd <i>principles</i> • the opponent understood the and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controversion	ve summary of the performances the reporter and ones) • the reviewer's personal opinion was in trivial and demonstrated, where possible, the revolution the reporter and the opponent	evidence (not just superficial observations) •
The reporter, opponent and reviewer each consider the following suggestions to a Select each partial grade from each sect	dd to or deduct from the initial 5 points. ion and write it in the corresponding box. questions were posed or not finding shortco  Opp.: Melwyk  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	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1  Clear and understandable  Appropriate manner  Overall impression  Reviewer ±1
Reporter ±1	Opponent ±1  Response to the reporter's solution  Shows the strong and weak points	Provides a thorough review of report and discussion  Expresses own opinion about
<ul><li>Explanation of formulae and symbols</li><li>Appropriate models, conformity</li></ul>	of the report  Finds shortcomings or errors in the report	topics presented or discussed  Relevance of questions to both the reporter and the opponent
of dimensions  Slides, on-site experiments, audio, video, as appropriate	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others  Novelty of the report  Contribution to the discussion		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend
Final Grade: Reporter	Final Grade: Opponent Revise	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

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Scol	rina			100

Fight (Round no.): _	5	Room:	<u>9</u> s	tage: .	3	Problem no.:	13
Juror: TATYANA	6	. 6	Signature:	V	25		

• 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

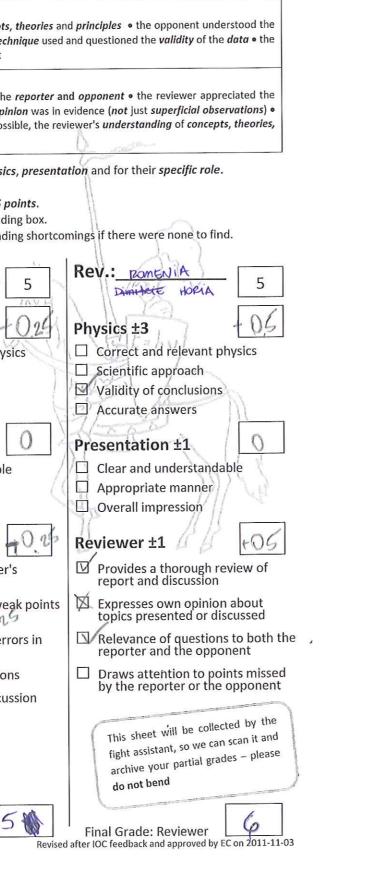
#### An opposition should show that:

• 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 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.

1 1		11 20 1
Rep.: PosiA 5	Opp.: UKRAINE 5	Rev.: POMENIA 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
		455B.
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 +05	Opponent ±1	Reviewer ±1 4 +06
Quality of 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions		
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade; Opponent 5	Final Grade: Reviewer





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Fight (Round no.):	5	Room: _	9	Stage:	3	_ Problem no.:	13	_
luror: Zuroma	Cocu	lova	Signatu	re:	0	ulina		

• 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 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.: Russia 5	Opp: Uhraine 5	Rev.: Remania 5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3  Correct and relevant physics  Scientific approach Validity of conclusions	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions
Accurate answers  Presentation ±1	Accurate answers  Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression  Reporter ±1	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression  Opponent ±1	Clear and understandable Appropriate manner Overall impression  Reviewer ±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 ☐ Finds shortcomings or errors in	<ul> <li>Expresses own opinion about topics presented or discussed</li> <li>Relevance of questions to both the</li> </ul>
symbols  Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	collected by the
<ul><li>□ References, proper citations of ideas and input of others</li><li>□ Novelty of the report</li></ul>		fight assistant, so we con- archive your partial grades – please
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer  after IOC feedback and approved by EC on 2011-11-03



Scoring G	uidelin	es
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ight (Round no.): _	5	_ Room: _	9	_ Stage:	3	_ Problem no.:	13
uror: Matties	Ano	levrong	Signatu	re:	M.	4.	

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

#### An opposition should show that:

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

#### A review should show that:

- 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</li> </ul>	questions were posed or not finding shortcom	mings if there were none to find.
Rep.: Russia 5	Opp.: Uhraine 5	Rev.: Romanía 5
Physics ±3	Physics ±3	Physics ±3 + 0,5
☐ Correct and relevant physics ↓	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach →	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions →	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable —	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 -0.5	Opponent ±1	Reviewer ±1 4 +0,5
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 8.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Round: Stage 3 Stage 4

		Stage 1 Stage 2		Stage 3			Stage 4					
Team Juror	Ukraine Rep	Romania Opp	Russia Rev	Romania Rep	Russia Opp	Ukraine Rev	Rep	Ukraine Opp	Romania Rev	Rep	Орр	Rev
Ulrike Regner chain	/	3	6	6	7	6	8	6	6			
Pornrat Wattanakasi wich	6	6	8	5	7	5	8	6	7			
Ye Yeo	5	6	7	7	8	7	5	5	8		-	
Tatyana Gorçalves Starles	icus 5	5	7	4	7	7	6	5	6			
Zuzana Coculová	6	3	7	5	8	7	6	6	6	a a		
Mattias Andersson	6	6	7	7	8	7	6	6	6			
Acting Team Member	Yevhen Melnyk		5	is Mag	Vitalii Matiunin	Mykyta Rohovyi	Vitalii Matiunin	Mykyta Rohovyi	Horia Magureanu			,,
Rejected Problems												
Accepted Problem		14			6			13				