0	0 1	0
Scoring	(SIIII)	Inpo
Juling	GAIACI	

Fight (Round no.):	3 Room:	1	Stage:	1	Problem no.:	10
Juror: S. By l	and	Signatur	e:	J	30	

• 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.: Humfay 5	Opp.: Crech Rep 5	Rev.: limapare 5
Physics ±3	Physics ±3 $-\frac{7}{2}$	Physics ±3 +1/2
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
□ Scientific approach □ Scienti	☐ Scientific approach	☐ Scientific approach
□ Validity of conclusions □ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	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 +/2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed 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 Jafter IOC feedback and approved by EC on 2011-11-03



ight (Round no.): _	3	Room:	[st	age:	Problem no.: 10
uror: Michael	F	Smith	Signature:	N	hah

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.

Hungary	questions (tere product the terminal of the te	Singapore
Ren.:	Opp.: Czech	Rev.:
5	5	5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 +0.5	Presentation ±1	Presentation ±1 +0.A
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
444 - 78		
Reporter ±1	Opponent ±1	Reviewer ±1 4 40.3
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed 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



Scorina	Guidelines

Fight (Round no.): _	3 Room:	1st	age:1	10 roblem no.:	Blade
luror: Surcerat	Homhuan	Signature:	sureerat	Homhu	an.

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

A report should include:

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

An opposition should show that:

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

A review should show that:

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

- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- 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.: Czech R 5	Rev. : δ8 5
Physics ±3	Physics ±3	Physics ±3 +1.5
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
	[2]	Presentation +1 +0.5
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 –	Opponent ±1	Reviewer ±1 / +0.5
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of guestions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent $\sqrt{}$
of dimensions	☐ Relevance of the questions	Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial glades
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Cooming	Cuidal	1::-
Scoring	Guiaei	ines

ight (Round no.):	3	_Room:	l	_Stage: _	Problem no.: _	10
iror: LANS	GISCE	ar ar	Signatuı	re:	Osc Cock	\

• 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.: SINGAPORE 5	Opp.: CLECK R 5	Rev.: Howcary 5
Physics ±3 0.5	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	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 D.5	Opponent ±1	Reviewer ±1 0.5
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the 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 Sevised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelines	Scol	rina	Guide	lines
--------------------	------	------	-------	-------

ght (Round no.):	3_1	Room:(Stage:	Problem no.:	10.
iror: Kem	Parke	Signa	ature: C	- Po	

• 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.

- of Col. 11.	.0 1 0/ 5	1 cray 1
Rep.: Tina Banocaki 5	Opp.: Pavla Béresova 5	Rev.: Shen Yn Jun 5
Mungay 5	Cred Rep.	Singapore.
	10/0/	
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
Procentation +1	(WEBD INC
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 11/2 [12]
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
Éxplanation 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 gray
☐ 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.):	Room:	Stage: _	Problem no.:	10
Juror: Kwan	g Kim	Signature:	Klim	

• 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.: HU 5	Opp.: C7 5	Rev.: 5 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1.	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	Overall impression	☐ Overall impression	
Reporter ±1 0	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of guestions to both the	
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed	
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent	
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial grown	
☐ 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	



0	ø	0	0 _ 1	10
SCO	rina	Guia	P	lines
966	00009			

Fight (Round no.): 3	_ Room: Stage: Proble	m no.: 14
Juror: S. Byland	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

- 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.: Czech Rep. 5	Opp.: Sinjapae 5	Rev.: Hanyany 5	
Physics ±3	Physics ±3	Physics ±3 + 1/2	
☑ 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	
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 sta	
☐ 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	



ight (Round no.): Roon	n: Stage: Problem no.: 14
uror: Michael F. Smit	Signature: A 7/4

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.: Czech 5	Opp.: Singapore 5	Rev.: Hungary 5	
Physics ±3	Physics ±3	Physics ±3 -0.4	
☐ 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 +0.5	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 O	Opponent ±1	Reviewer ±1 6 -0.1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent	
 Appropriate models, conformity of dimensions 	Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
	Contribution to the discussion		
☐ 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 grow	
☐ 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	ring	Guia	del	ines
	uuug	UMIC		

Fight (F	Round no.):	3	_ Room:	St	age: _	2	Problem no.:	circle of
luror	Surporat	Hon	nhuan	Signature	Sur		Homhuan	

• 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.: Czech Republic. 5	Opp.: Singapore 5	Rev.: Hungary 5
Physics ±3	Physics ±3 +1	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics☐ Scientific approach	☐ 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
Accurate answers		Accurate allswers
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 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



Scori	na C	iuid	in	05
	iig e		9 0 0	60

ight (Round no.):	3 Room	n: Stage:	Problem po.: 14
uror: LAAS	GISLES	Signature:	Lew 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

- 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.: <u>CZECH</u> 8 5	Opp.: SINGAPORE 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	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 broad
☐ 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



0		0 []	ПО
Scorin	00 (51	IIIde	lines

Fight (Round no.): 3	Room:	Stage:	2	_ Problem no.:	14
Juror: Kerny Parker	Signat	ure: Ke	n	BL.	

• 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.

2 17		. 11
Rep.: Pavla Beresova 5	Opp.: Lee Yn Tse 5	Rev.: A'kos Biro 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions?	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
	[]	1/3 p. b.
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	Clear and understandable
✓ □ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grad
🛱 Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Servised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Sco	rina	Guide	lines
		GAIGE	

Fight (Round no.):	Room:	_ Stage:2	Problem no.:	14
uror: Kwang	Kim Signatu	ıre:	Arm	

• 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.: (7 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 b	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 question		
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate			
References, proper citations of ideas and input of others	8	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 after IOC feedback and approved by EC on 2011-11-03	



Coominger	Carida	10000
Scoring	Guiaei	unes

Fight (Round no.): 3	Room:	1	Stage:	3	Problem no.: 13
uror: S. Byland		Signatur	e:	By	9

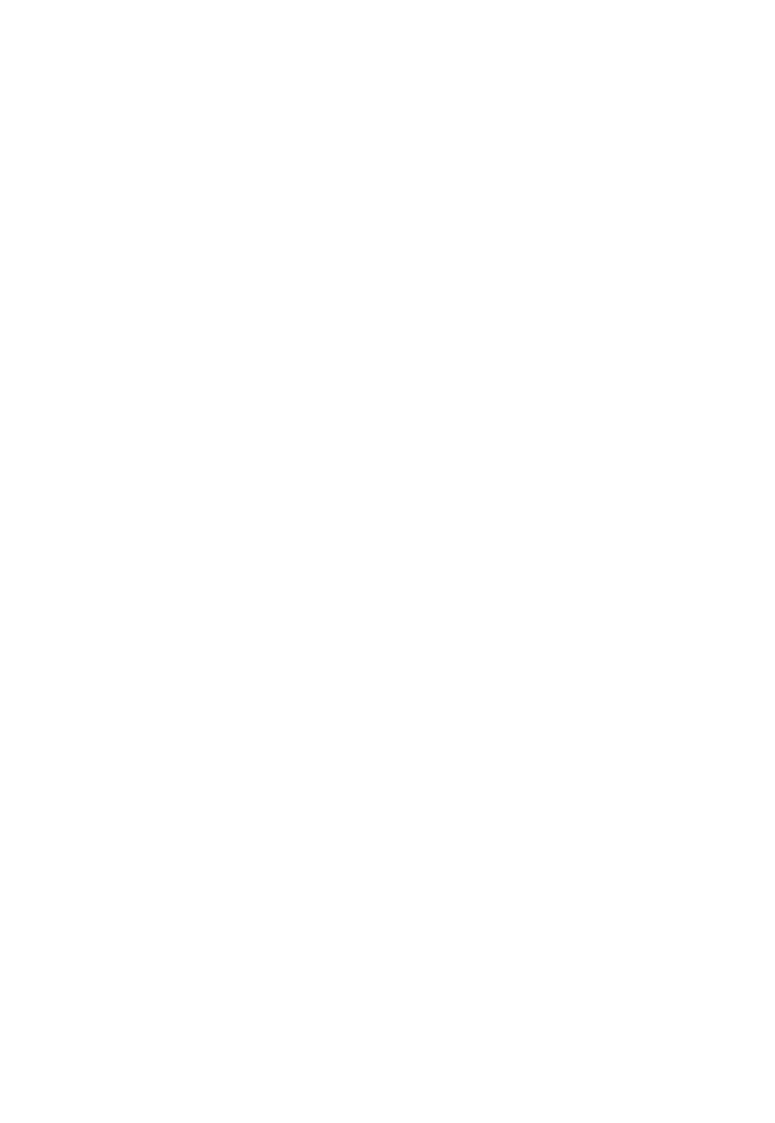
• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical 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.: Singapore 5	Opp.: Huyan 5	Rev.: Cach Rep 5
7 19 29 3		
Physics ±3 + 2½	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
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 + ½	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points 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
	9000 00 0 80 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
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	Live 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
☐ Novelty of the report		archive your partial st
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



ight (Round no.): _	3	Room:	1	_ Stage:	3	_ Problem no.:	13
uror: Michael	F	Smith	Signatu	ıre: ~	1	4/1	

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.: Sing apore 5	Opp.: Hungary 5	Rev.: Czch 5
Physics ±3	Physics ±3 +2	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 +0.2	Presentation ±1	Presentation ±1 0.3
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 +0-3	Opponent ±1	Reviewer ±1
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in 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 size
☐ 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



Fight (Round no.): _	3	_ Room:	1	Stage:	3	13 Magnetic Problem no.:pendulum
Juran Sureprat	Hom	huah	Signatur	a. Su	reen	at Homhuan.

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.: Singapore 5	Opp.: Itungary 5	Rev.: Czech 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 +05	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.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 8
☐ 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



Scorin	a Gi	iida	olin	00
	y u	IIUC	50000	C3

ight (Round no.): _	3	Room:	l	Stage:	3	Problem no.:	13
uror: LANS	651	1	Signatur	_{re:} L	acs	(out	in.

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

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the 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.: Sweare 5	Opp.: LINGARY 5	Rev.: Czeck R 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1 0	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	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 sta
☐ 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



	0	0 1	0
SCO	rina	Guide	lines

ight (Round no.):	_ Room:	Stage:	_ Problem no.: 13	3_
uror: KParker	Sign	ature: <u>k</u>	l.	

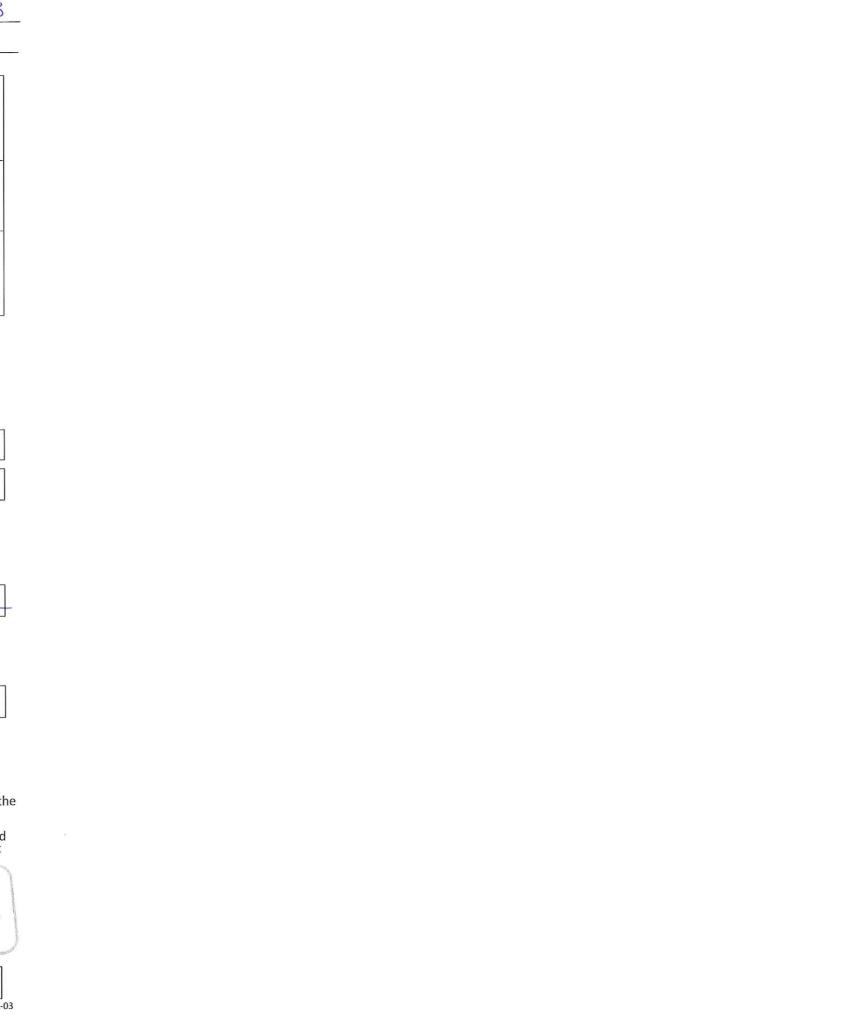
• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical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

- 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.: Koh Jin Ming 5	Opp.: Ardras Lauto Hungary 5	Rev.: Parel Ste paret 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
11 115		1/25 to 1
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 40 5	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
 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	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



920			
Cas	RADIA AL	Guide	lina
$\mathcal{N}(\mathcal{O})$	ncii inioi (Ci	(911111018	IIINPS
000			

Fight (Round no.):	3	_ Room:	1	_ Stage: _	3	Problem no.:	13
luror: Kwan	gK	im	Signatu	re:	K	Min	

• 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.: <u>SP</u> 5	Opp.: HR 5	Rev.: <u>C</u> 7 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 +	Opponent ±1 +(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
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 gludes
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC of 2011-11-03



Round: Room: Tight Assistants: Mr. Korren Papaway. Mr Thunundon Kongnok

		Stage 1			Stage 2			Stage 3	_		Stage 4	
Team	Hungary	Czech Rep.	Singapore	Ctech Pep.	Singapore	Hungary	Singapore	Hungary	Ctech Pep.			
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Samuel Byland (Chair)	4	5	7	4	47	6	9	7	5			
Michael F. Smith	6	4	7	Ā	77	4	8	7	5			
Screenat Hombuan	5	A	8	4	77	5	9	6	5			
Lars Gislen	6	5	б	A	7	8	8	6	6			
Kerry Parker	5	A	7	5	5	5	8	7	7			
Kwang Joo Kim	6	6	8	6	6	5	94	7	6			
Acting Team Member	Ting	Parla Bonesova	yu Jan Shen	Bula berpsoua	Yu Be Lee	Akos	LOH JIM MING	Andras Lawlo	75100			
Rejected Problems								Ř				
Accepted Problem	10 Singi	s flades of	Gross	LA Cirni	e of light		13 Magn	relic Pendul	N-W			

<i>f</i>		~	
ender a man	to the same of the	77 NY 08	71112
Signature Fight Assistants Puller amous	Double checked with Scoring Guidelines by second Fight Assistant (signature).	912000	10001
signature Fignt Assistant:	Double-checked with Scoring Guidelines by second Fight Assistant (signature):	~~	**********************

Fight (Round no.):	Room:	2	_ Stage:	1	Problemno.:	M
Juror: All Chi	W	Signatu	re:	A		

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to 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.: 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	Overall Impression
Reporter ±1 0.4	Opponent ±1	Reviewer ±1 6 6 +1
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial s.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent	Final Grade: Reviewer

Cas			101	1:1000
SCO	ring	Guia	e	ines

	3	7	1		10
ight (Round no.):	Room:		Stage:	Problem no.:	10
uror: Kancula	no Dusakit	Signature	: n	Attgen.	

• 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.: Korea 5	Rev.: USA 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	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 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



Carrier Cariolalia	Fight (Round no.): 3 Room:	2 Stage: Problem no.: /
Scoring Guidelir	1 es Juror: <u>F. 50NG</u>	Signature: 4 Sough
	-	
A report should include:		/
application of appropriate mathematics • re	ts, theories and principles of the problem • an expensionable experimental technique to gather and resperimental findings to draw suitable conclusional dable manner	cord data (or demonstrate the phenomena if
An opposition should show that:	•	
• the opponent challenged the reporter's un	nderstanding of the presented concepts, theories are oponent critiqued the experimental technique used rengths and weaknesses of the report	
A review should show that:		
	tive summary of the performances the reporter a	nd opponent • the reviewer appreciated the
important aspects (especially the controvers	sial ones) • the reviewer's personal opinion was in	evidence (not just superficial observations) •
such personal opinions were <i>informative</i> , no principles and appropriate mathematics use	on-trivial and demonstrated, where possible, the rev	riewer's understanding of concepts, theories,
principles and appropriate mathematics use	a by the reporter and the opponent	La contract
 The grade for each of the three teams 	consists of a partial grade for physics, presente	ation and for their specific role.
The reporter, opponent and reviewer	11	1
	add to or deduct from the initial 5 points.	
	ction and write it in the corresponding box. no questions were posed or not finding shortco	mings if there were none to find.
	//	. 1
Rep.: 67 0 -	Opp.:_ k0	Rev.: (15)
() () 5	78	5
	Mal Invita	
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
		2-68
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
	<i>W</i>	70 // // // //
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and	of the report	topics presented or discussed
L Explanation of formulae and	1 -	

	Fight (Round no.): 3 Room:	2 Stage: Problem no.: /o
Scoring Guideling	ac	Signature: Say
A report should include:		
• a presentation of the appropriate concepts, application of appropriate mathematics • reas	theories and principles of the problem • an exponent of 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 are onent critiqued the experimental technique used angths 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	The summary of the performances the reporter and ones) • the reviewer's personal opinion was in trivial and demonstrated, where possible, the revoy the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each section 	11	
Rep.: 67 5	Opp.: <u>k0</u> 5	Rev.: <u>US</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
 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
☐ 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

Fight (R	ound no.): _	3	Room:	2	_Stage: _	1	Problem no.: 10
Juror: _	Julian	Ron	acher	Signatu	re:	Rou	alot

A report should include:

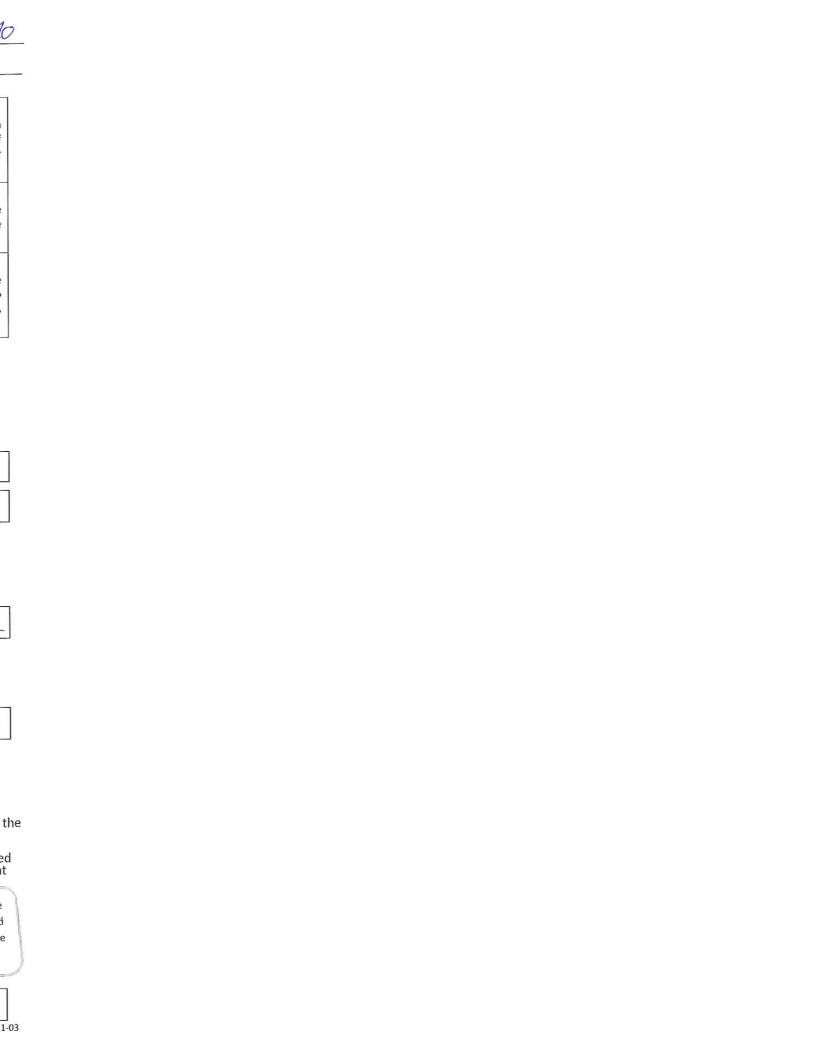
• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical 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.: Germany 5	Opp.: Korea 5	Rev.: <u>USA</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 2
Clear and understandable	🗹 Clear and understandable	🗹 Clear and understandable
☐ Appropriate manner	🛮 Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	☑ Overall impression
Reporter ±1.	Opponent ±1	Reviewer ±1 0,5
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure	Shows the strong and weak points 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 grow
☐ 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 Guidelii	right (Round no.): 3 Ro Nes Juror: Vent Hogan	oom: 2 Stage: Problem no.: 1
application of appropriate mathematics • r	easonable experimental technique to gather a experimental findings to draw suitable concl	an explanation of the observed phenomena • an and record data (or demonstrate the phenomena if usions • an attempt to communicate difficult or
	nderstanding of the presented concepts, theoropponent critiqued the experimental technique	ries and principles • the opponent understood the used and questioned the validity of the data • the
A review should show that:		
		ter and opponent • the reviewer appreciated the
		as in evidence (not just superficial observations)
principles and appropriate mathematics use	0	ne reviewer's understanding of concepts, theories,
~	a de la companya della companya della companya de la companya della companya dell	Contract of the contract of th
	s consists of a partial grade for physics, pre	sentation and for their specific role.
The reporter, opponent and reviewer Consider the following suggestions to	each start with 5 points. and to or deduct from the initial 5 points.	
Particular and the state of the	ection and write it in the corresponding bo	10
	no questions were posed or not finding sho	
Contract	Mr. V and	MOA
Rep.: 4	Opp.: V-orea 5	Rev.: 5
Jonas Landgraf	Se Bean Lee	John Lukowski
Physics +3	10/0/	
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
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
	50 F 1 F 10	

155	The state of the s				
• The reporter, opponent and reviewer ea	//	and Parket			
 Consider the following suggestions to ac Select each partial grade from each sections 	in to or <i>deduct</i> from the initial 5 points.				
the state of the s	questions were posed or not finding shortco	mings if there were none to find.			
Rep.: Germany 5	Opp.: Vorea 5 Se Baon Lee 5	Rev.: USA John Lukonski 5			
Physics ±3	Physics ±3 +2	Physics ±3			
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics			
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach			
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions			
☐ Accurate answers	Accurate answers	Accurate answers			
Presentation ±1.	Presentation ±1	Presentation ±1 +1			
Clear and understandable	☐ Clear and understandable	Clear and understandable			
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner			
☐ Overall impression	Overall impression	Overall impression			
Reporter ±1	Opponent ±1 + ½	Reviewer ±1			
Quality of experimental technique(s) Not used	Response to the reporter's solution	 Provides a thorough review of report and discussion 			
Structure for not shown it	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 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	Guidelines	
			y

Fight (Round no.): _	3	_ Room: _	2	Stage:	Problem no.:	10
wor Mattias	Ando	Mson,	Signati	ıre. 1	1 A	

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

An opposition should show that:

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

A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were 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

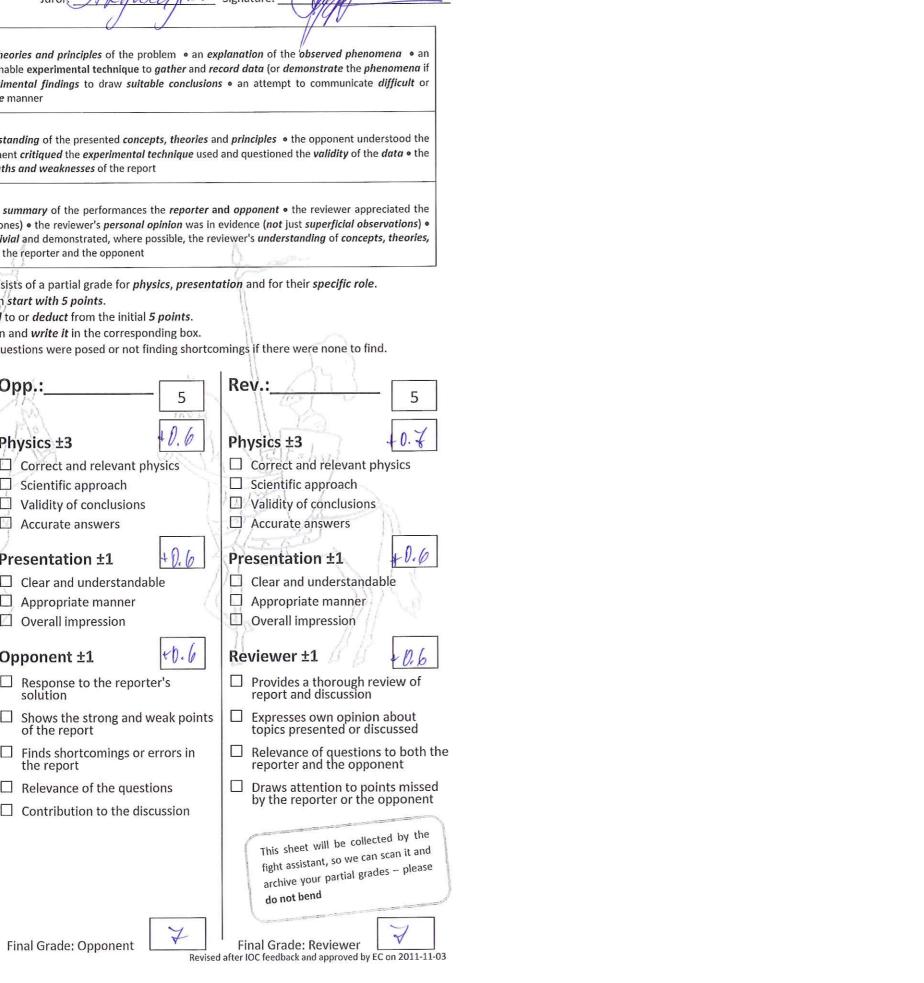
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from 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.: Cerumy 5	Opp.: Korea 5	Rev.: USA 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	Accurate answers	
Presentation ±1	Presentation ±1	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	Overall impression	Overall impression	
Reporter ±1 +0.5	Opponent ±1	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the	
☐ Appropriate models, conformity	the report +	reporter and the opponent	
of dimensions	☐ Relevance of the questions	Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and	
☐ 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	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03	



Scoring Guidelines A report should include: • a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner An opposition should show that: • the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report A review should show that: • the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent • The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role. • The reporter, opponent and reviewer each start with 5 points. Consider the following suggestions to add to or deduct from the initial 5 points. • Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find

Rep.: 5	Opp.:5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 6 0.6
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 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 Bros
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Scoring Guidelin	Fight (Round no.): 3 Room Suror: Wittaya Kanchavapus	n: 2 Stage: 2 Problem no.: Signature: Wiffe
A report should include:		
application of appropriate mathematics • reas	sonable experimental technique to gather and erimental findings to draw suitable conclusi	explanation of the observed phenomena • an record data (or demonstrate the phenomena if ons • an attempt to communicate difficult or
	onent critiqued the experimental technique us	and <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 controversia	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,
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 	(1)	
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 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 point	s Expresses own opinion about
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	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 812
☐ Contribution to the discussion		do not bend

Final Grade: Opponent

Final Grade: Reporter

Final Grade: Reviewer

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



Carrier Carlolina	Fight (Round no.): Roon	n: 2 Stage: 2 Problem no.: 1
Scoring Guidelines	Juror: F. SON 6	Signature: South
A report should include: • a presentation of the appropriate concepts, the application of appropriate mathematics • reasona appropriate) • linking of theoretical and experin complex ideas in an effective and understandable of the second sec	ble experimental technique to gather and nental findings to draw suitable conclusion	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's understee appropriate mathematics presented • the opponent opponent appreciated and highlighted the strength	nt critiqued the experimental technique use	
A review should show that: • the reviewer succeeded in giving an objective so important aspects (especially the controversial on such personal opinions were informative, non-triviprinciples and appropriate mathematics used by the	es) • the reviewer's <i>personal opinion</i> was i ial and demonstrated, where possible, the r	n evidence (not just superficial observations) •
 The grade for each of the three teams consists. The reporter, opponent and reviewer each sections. Consider the following suggestions to add to Select each partial grade from each section. Don't punish missing 'answers' when no que 	start with 5 points. o or deduct from the initial 5 points. and write it in the corresponding box.	
Rep.: 5 0	pp.: US 5	Rev.: 67 5
Physics ±3	nysics ±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

	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.:	Opp.: 1/5 5	Rev.: 61 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 Bra	
☐ 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	Guide	lines

Fight (Round no.): _	3	_Room: _	2	_Stage: _	2	Problem no.:	1
Juror: Jalian	Rona	rcher	Signatu	re:	Ro	nakor	

• 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.: Kovea 5	Opp.: <u>USA</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	☐ 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 02	Opponent ±1	Reviewer ±1 0,3	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed	
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent	
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed	
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent	
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your partial star	
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	



Fight (Round no.): _	3	Room:	2	Stage:	2	Problem r	10.:	
Juror: Kent F	togo	W_	Signatur	e:	my			

A report should include:

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

- 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.: Yorea Ahn Cheang-Eurg 5	Opp.: USA Brian Tu 5	Rev.: Gremany Am-Kathrin Roab 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 + 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 -½	Opponent ±1	Reviewer ±1
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points 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, and grades – please
☐ Novelty of the report		archive your partial a
☐ Contribution to the discussion	6	do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

:
• an na if It or
I the the
the ns) • ries,
5 - 1 ½
of
ut ed oth the
nissed nent
the t and lease
7

ight (Round no.):	3	Room: 2	Stage:	Prob	lem no.: _	1
uror: Matha	> Au	lerro Sign	ature:	M.A		

A report should include:

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

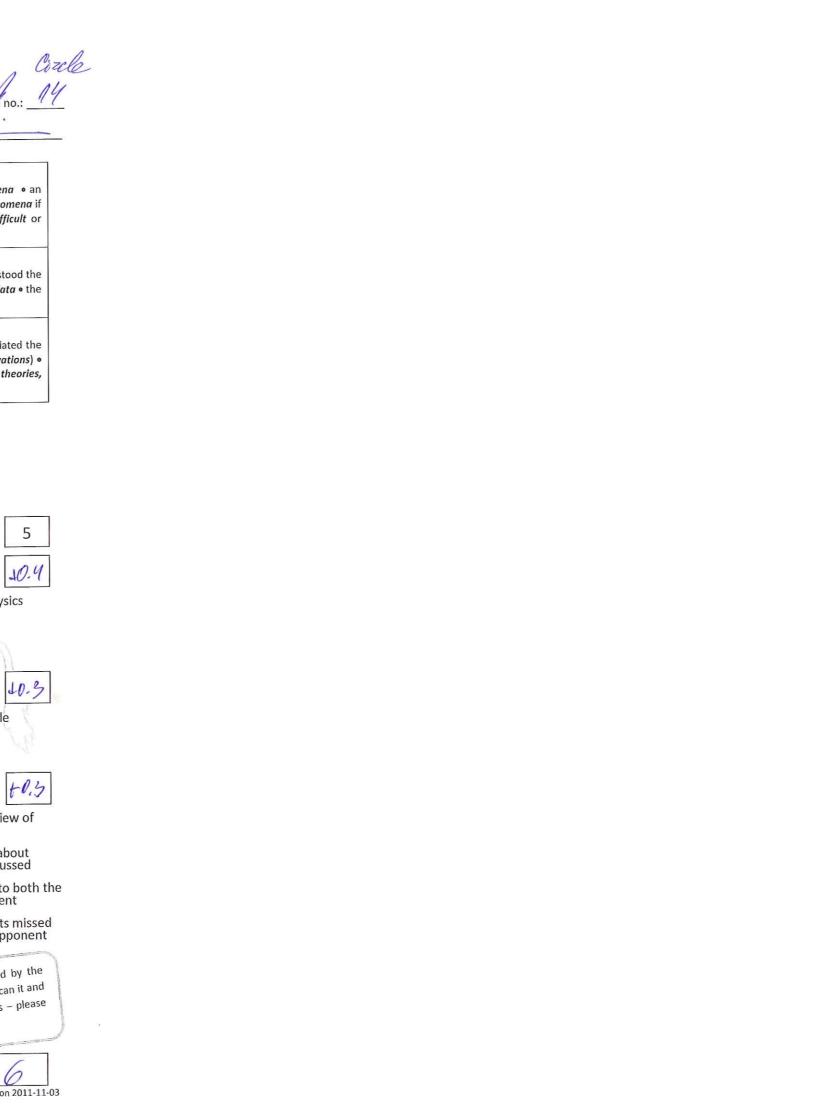
• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* and *principles* • the opponent understood the *appropriate mathematics* presented • the opponent *critiqued* the *experimental technique* used and questioned the *validity* of the *data* • the opponent appreciated 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.: Kovea 5	Opp.: USA 5	Rev.: Gemany 5
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable☐ Appropriate manner☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 +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		fight assistant, so we can see archive your partial grades – please do not bend
☐ Contribution to the discussion		do not pens
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



	111	9 3 A 14
Scoring Guidelin	Fight (Round no.): M Room: Juror: Myuldjiev	Stage: Problem no.:
application of appropriate mathematics • rea	theories and principles of the problem • an exponential technique to gather and reconstructed findings to draw suitable conclusions	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's und	erstanding of the presented concepts, theories an onent critiqued the experimental technique used	
important aspects (especially the controversion	ve summary of the performances the reporter are all ones) • the reviewer's personal opinion was in entrivial and demonstrated, where possible, the reverse by the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to a Select each partial grade from each sect 	- //	
Rep.: USA 5	Opp.: Germany 5	Rev.: Korea 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	Opponent ±1 10.2	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	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	Relevance of questions to both the
Appropriate models, conformity 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 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



	o	0	n n	10
SCO	orina	Guia	P	ines
	עשונונוניוניוניוניוניוניוניוניוניוניוניוני			

ight (Round no.): _	3	Room:	2	_Stage:	3	Problem no.:	14
uror: koncho	uapu	cleit	Signatu	re:	n	illyen.	

• 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.: US A 5	Opp.: Germany 5	Rev.: Konea 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
 □ Scientific approach □ Validity of conclusions □ Accurate answers 	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable☐ Appropriate manner☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1.	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 ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	This sheet will be collected by the
References, proper citations of ideas and input of others		This sheet will be concern fight assistant, so we can scan it and archive your partial grades – please
☐ Novelty of the report☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Cas			101	lina
200	ring	Guic	Je I	ines

ight (Round no.):	3	_Room:	2	_ Stage:	3	_ Problem no.:	14
uror: F. 90	ONG	-	Signatu	ıre:			

• 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.: <u>US</u> 5	Opp.: 612 5	Rev.: 6
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression
Reporter ±1 Quality of experimental technique(s)	Opponent ±1 Response to the reporter's solution	Reviewer ±1 Provides a thorough review of report and discussion
 ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity 	☐ 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
 □ Appropriate models, conformity of dimensions □ Slides, on-site experiments, audio, video, as appropriate □ References, proper citations of 	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent This sheet will be collected by the
☐ References, proper citations of ideas and input of others ☐ Novelty of the report ☐ Contribution to the discussion		This sheet will be concern fight assistant, so we can scan it and archive your partial grades – please 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



Fight (Roun	d no.): _	3	_ Room: _	2	_Stage: _	3	_ Problem no.	: 14
Juror: Ja	elian	Ron	achers					

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.: <u>USA</u> 5	Opp.: Germany 5	Rev.: Koved 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	X Clear and understandable	🖄 Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 -0,4	Opponent ±1	Reviewer ±1 08
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, artial grades – please
☐ 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 I after IOC feedback and approved by EC on 2011-11-03



Sco	ring	Gu	ide	lin	es
			11 61 6	, , , , ,	

ight (Round no.):	3 Rooms	2	Stage:	3	Problem no.:	14
uror: Vent 1	Hogan	Signatu	_	hul	11	

• 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.: USA Karl Sewick 5	Opp.: Germany 5 Anna Kathrin Raab 5	Rev.: Korea 5 Ahn Cheeng-Eung 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
☐ 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 6 +1/2
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan be please
☐ Novelty of the report		archive your partial Bra
☐ 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	Guid	elines
---------	------	--------

ight (Round no.):	3	Room:	2	_ Stage: _	3	_ Problem no.:	14	
wor: Matties	An	lesson	ignatu	ıre:	MI	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.: <u>USA</u> 5	Opp.: Gernang 5	Rev.: Korea 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics +	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
		WEED.
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
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 8
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 5



	Room:	Fig	ht Assistan	ts: Kerrals	earn fabire	ong /	Jirapom	Suonjae				
		Stage 1			Stage 2	v		Stage 3			Stage 4	
Team	Germany	Korea	US A	korea	USA	Germany	USA	Germany	Korea	-		D
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Assen Kyuldjiev	6	8	8	7	7	7	3	6	6			
Wittaya Kanchanapusakit	7	7	7	7	6	6	4	6	7			
Feng Song	5	7	9	5	7	7	4	7	7			
Julian Ronacher	6	6	7	7	4	6	3	7	8			
Kent Hogan	4	7.	7	7	6	7	4	6	7			
Mattias Andersson	7	6	7	8	7	7	5	6	5			
Acting Team Member	Jonas Landgraf	SeBeom Lee	John Lukowski	Ahn Cheong-Eung	Brian Tu	Ann - Kathrin Raab	Karl Sewick	Ann - Kathrin Raab	Ahn Cheong - Eung			
Rejected Problems	16 s	13					9					
Accepted Problem	10				1			14				

	K.	A D		5 7 7 7 7 1 mm 1 7 7		Jirapom	Jaenjae
Signature Fight Assistant	my make my	Takwang	Double-checked with Scoring	g Guidelines by second Fight Ass	sistant (signature):		
Digitatare Figure Assistantian		5	The state of the s				

9	
Scoring Guidelines	Fight (Round no.): 3 Room: 5 Stage: 1 Problem no.: 6 Juror: WWWALL Signature: Www. Signature: 1
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
An opposition should show that: • the opponent challenged the reporter's understandin appropriate mathematics presented • the opponent croopponent appreciated and highlighted the strengths and	ng of the presented concepts, theories and principles • the opponent understood the itiqued the experimental technique used and questioned the validity of the data • the nd weaknesses of the report
important aspects (especially the controversial ones)	nary of the performances the reporter and opponent • the reviewer appreciated the • the reviewer's personal opinion was in evidence (not just superficial observations) • nd demonstrated, where possible, the reviewer's understanding of concepts, theories, eporter and the opponent
The reporter, opponent and reviewer each start Consider the following suggestions to add to or Select each partial grade from each section and	deduct from the initial 5 points.
Rep.: <u>POC + A S</u> 5 Opp	D.: AUSTRIA 5 Rev.: AUSTRIA 5 L. AUSTRIA 12 L. AUSTRIA 12

important aspects (especially the controversial	e summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review the reporter and the opponent	vidence (not just superficial observations) •
 The reporter, opponent and reviewer ear Consider the following suggestions to an Select each partial grade from each section 	d to or deduct from the initial 5 points.	
Rep.: <u>POL HOUS</u> 5	Opp.: 1057 RIA 5	Rev.: AUSTRALIA 5
Titysies 25	Filysics ±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
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 gr
☐ 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



6		
Carrier Cuidalina	Fight (Round no.): Room: _	3 Stage: Problem no.:
Scoring Guideline	Juror: Shchelnikov	Signature:
application of appropriate mathematics • reason	theories and principles of the problem • an exponable experimental technique to gather and receimental findings to draw suitable conclusions to the manner	ord 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 strength	rstanding of the presented concepts, theories and onent critiqued the experimental technique used a ligths 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 controversial	e summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review the reporter and the opponent	vidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each section 	d to or deduct from the initial 5 points.	
Rep.: Poland 5	Opp.: Austra 5	Rev.: Autrolia 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 Opponent ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression Reviewer ±1
Reporter ±1 Quality of experimental	Response to the reporter's solution	Provides a thorough review of report and discussion
technique(s) 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 t
symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio,	the report Relevance of the questions Contribution to the discussion	reporter and the opponent Draws attention to points misse by the reporter or the opponent
video, as appropriate References, proper citations of ideas and input of others Novelty of the report		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please

Final Grade: Opponent

☐ Contribution to the discussion

Final Grade: Reporter

do not bend

Final Grade: Reviewer

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

Can	rina	Guid		lina
300	ring	Guid	CI	IIIE3

ight (Round no.): _	3	Room:	3	_Stage:	Prob	lem no.: _	6
uror: Felicia	Olls	tad	Signatu	re: Fl	lus	111	9

• 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 shortcor	mings if there were none to find.
Rep.: Poland 5	Opp.: Austria 5	Rev.: Australia 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics →	Correct and relevant physics	\square Correct and relevant physics $+$ $-$
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions → //	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers ►	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed —
☐ Explanation of formulae and symbols →	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions + 	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion —	by the reporter or the opponent -
References, proper citations of ideas and input of others.		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report →		archive your partial grow
☐ 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



	0	0 0 1	1 1	10
SCO	rina	Guid	P	ine
	עשוווווו			

Fight (Round no.): Room:	Stage:_	1 Problem no 6	
Juror: Timosh chenko	Signature:	ful	

• 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

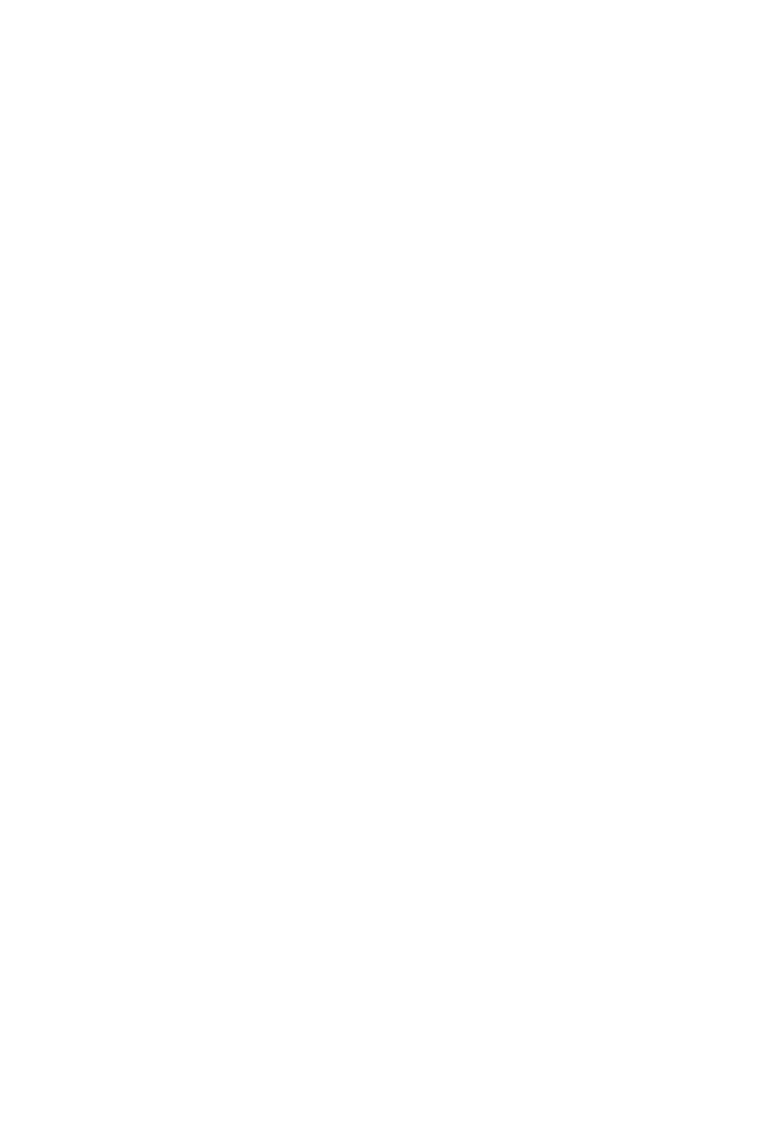
- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were 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 shortco	mings if there were none to find.
Rep.: Poland 5	Opp.: Australia 5	Rev.: Austrig 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 gra
☐ 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



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 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.: 47 5	Rev.: 44 5			
Physics ±3	Physics ±3	Physics ±3			
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics			
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach			
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions			
☐ Accurate answers	Accurate answers	.□' Accurate answers			
Presentation ±1	Presentation ±1 +0.5	Presentation ±1			
☐ 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 ±1 405			
 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	st	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 Revised	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03			



8 9 *		
Scoring Guidelin	Fight (Round no.): 3 Room: Juror: Synchak Limbum)	Stage: Problem no.: 6
application of appropriate mathematics • reas	theories and principles of the problem • an expensionable 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 unda 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	d <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) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 	onsists of a partial grade for <i>physics, presenta</i> ach start with 5 points. Idd to or <i>deduct</i> from the initial 5 points. Ion and write it in the corresponding box. questions were posed or not finding shortcom	
Rep.: Polydon 5	Oppl: Austria 5	Rev.: Austrialia 5
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1	Presentation ±1 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 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		This sheet will be collected by the

· · · ·		
	Fight (Round no.):3 Room:	3 Stage: 1 Problem no.: 6
Scoring Guideline	25 Juror: Surachate Limberman	Signature: Lint Cin
application of appropriate mathematics • reas	theories and principles of the problem • an exponents on a substitution of the problem of an exponents of the problem of an exponents of the problem of the	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 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
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 reverse the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sectj 	5/	
Rep.: Polyhols 5	Oppl: Austria 5	Rev.: Australia 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	Opponent ±1 Response to the reporter's	Reviewer ±1 6 6 9
technique(s)	solution Shows the strong and weak points	report and discussion Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols Appropriate models, conformity	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	ii I bu 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
☐ Novelty of the report		archive your partial s.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent S Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Scoring	Guide	lines

ight (I	Round no.): _	3	Room:	3	Stage:	2	Problem n	o.: _/	2
ıror:	RUND	RACI	12	Signatur	e: (leer	ara	is	

• 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.: AUSTRIX 5	Opp.: AUSTRHLIA 5	Rev.: POLAND 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	HERE &
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 41
Quality of experimental technique(s)	Response to the reporter's solution	 Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
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 after IOC feedback and approved by EC on 2011-11-03



Carrier Carialalia	1	Stage: Problem no.:
Scoring Guidelin	es Juror: Shehetnikov	Signature:
application of appropriate mathematics • rea	theories and principles of the problem • an exposionable experimental technique to gather and reconstructed findings to draw suitable conclusions while manner	cord data (or demonstrate the phenomena if
	erstanding of the presented concepts, theories an conent critiqued the experimental technique used ngths and weaknesses of the report	
important aspects (especially the controversion	ve summary of the performances the reporter and ones) • the reviewer's personal opinion was in entrivial and demonstrated, where possible, the revelop the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ex Consider the following suggestions to a Select each partial grade from each sect 	onsists of a partial grade for <i>physics, presenta</i> ach <i>start with 5 points</i> . <i>dd</i> to or <i>deduct</i> from the initial <i>5 points</i> . ion and <i>write it</i> in the corresponding box. questions were posed or not finding shortcom	
Rep.: Austria 5	Opp.: Australia 5	Rev.: 5
Physics ±3 ☐ Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
Scientific approach Validity of conclusions Accurate answers	Scientific approach Validity of conclusions Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 Clear and understandable
Clear and understandable Appropriate manner Overall impression	Clear and understandable Appropriate manner Overall impression	Appropriate manner Overall impression
Reporter ±1 0	Opponent ±1	Reviewer ±1 6 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		fight assistant, so we com- archive your partial grades – please do not bend
☐ Contribution to the discussion		do not pend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

100000			
Scarina	Guid	0	linac
Scoring	Guiu	CI	11163

Fight (Round no.): _	3	_Room:	3	Stage:	2	_ Problem	no.: _	12
Juror: Felicia	a VI	Istad	Signatur	re: 4	00,	11	16	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.

Rep.: Austria 5	Opp.: Australia 5	Rev.: Poland 5
Physics ±3	Physics ±3 +2	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 -Q5	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 partial grad
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



	0 1	ПО
Scarina	Guido	lino
Scoring	UUIUC	

ight (Round no.):	1	Room:	3	_ Stage:	2	Probler	n no.:	12	
uror: Timosh	chen	Ko	Signatu	re:	9				

• 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 how

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



81	7	3 2 17-
Carriera Caridalina		oom: Stage: Problem no.:
Scoring Guideline	S Juror: Tatheny Ch	CM_ Signature:
	0	
application of appropriate mathematics • reason	nable experimental technique to gather i imental findings to draw suitable conc	an explanation of the observed phenomena • an and record data (or demonstrate the phenomena if dusions • an attempt to communicate difficult or
An opposition should show that: • the opponent challenged the reporter's undersappropriate mathematics presented • the opponent appreciated and highlighted the streng	nent critiqued the experimental technique	ories and principles • the opponent understood the e used and questioned the validity of the data • the
A review should show that:		
important aspects (especially the controversial	ones) • the reviewer's <i>personal opinion</i> v ivial and demonstrated, where possible,	orter and opponent • the reviewer appreciated the was in evidence (not just superficial observations) • the reviewer's understanding of concepts, theories,
The grade for each of the three teams con	isists of a partial grade for physics, pro	esentation and for their specific role.
 The reporter, opponent and reviewer each Consider the following suggestions to add 	i start with 5 points. I to or deduct from the initial 5 points	
 Select each partial grade from each section 	n and write it in the corresponding be	ox.
Don't punish missing 'answers' when no 'q	uestions were posed or not finding sl	nortcomings if there were none to find.
5	Opp.: AU 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	Scientific approach	Scientific approach
Uslidity 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
Overa) (impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 +0	Reviewer ±1 8 6 5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak pof the report	oints Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors the report	
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	1
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
oraco. Hoportor		Revised after IOC feedback and approved by EC on 2011-11-03

	Fight (Round no.):3 Room: _	3 Stage: 2 Problem no.: 12
Scoring Guideline	es Juror: S. Limkymuchd	The second secon
application of appropriate mathematics • reas	theories and principles of the problem • an exponents on a but on	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
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 revoy the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 		
Rep.: Austria 5	Opp: Australia 5	Rev.: 5
☐ Correct and relevant physics☐ Scientific approach☐ Validity of conclusions ☐	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
Reporter ±1	Opponent ±1	Reviewer ±1 // // Provides a thorough review of report and discussion
technique(s) Structure	solution Shows the strong and weak points	Fxpresses 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	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		fight assistant, so we can see archive your partial grades – please do not bend
☐ Contribution to the discussion		do not pena
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 7 I after IOC feedback and approved by EC on 2011-11-03

_		- 0	
Sco	rina	Guid	no
		UUIU	

ight (Round no.):	Room: S	Stage: S	Problem no.:	7
uror: KUWDRA	elle Signat	ure: Ull	cerce	9

• 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 pullish missing answers when no	questions were posed of flot infamily sites to	
Rep.: WSTRALIA 5	Opp.: POLAND 5	Rev.: <u>40 \$7721 A</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 +0,5	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 +0,5	Opponent ±1	Reviewer ±1 8 -05
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae 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 B
☐ 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



-	0		1 10
SCO	rina	GILLO	lelines
	IIIII	UUIU	

ight (Dound no)	3 Roc	3	Stage:	3 Proble	em no.:	
ight (Round no.):	+ .	1	A 550 S	5//	- III IIO	•
uror: hene	MIKO	✓ Signatur	e:	14		

• 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 infullig shorteon	illings if there were none to find.
Rep.: Australia 5	Opp.: Polond 5	Rev.: 445 17 2 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 +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 partial gran
☐ 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



			0 1		R o
Cco	ring		ni A	0	linos
200	IIIII	UL	III CI	CI	

ght (Round no.): _	3 Roon	n: <u>3</u>	_ Stage:	Pro	blem no.: _	7
uror: Felicia	Ullstac	Signatu	ire: Fel	lun	Me	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.: Australia 5	Opp.: Poland Radost Waszwarie 5	Rev.: Austria 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics + ~	Correct and relevant physics	☐ Correct and relevant physics +
☐ Scientific approach —	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers ←	☐ Accurate answers →	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable —	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution +-	Provides a thorough review of report and discussion +
☐ Structure —	☐ Shows the strong and weak points of the report +	Expresses own opinion about 4 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 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



0	0	0 1	10
SCO	rina		elines
	uuug	UNIN	

ight (Round no.): Room:	3 Stage: 3	Problem no.: 7
uror: Timos hehen ko	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.

	The reporter, opponent and reviewer each start with 5 points.				
• Consider the following suggestions to ac	11				
	on and write it in the corresponding box.				
Don't punish missing 'answers' when no Aus tralia	questions were posed or not finding shortcom	mings if there were none to find.			
Rep.: 5	Opp.: Poland 5	Rev.: Australia 5			
Physics ±3	Physics ±3	Physics ±3			
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics			
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach			
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions			
☐ Accurate answers	Accurate answers	☐ Accurate answers			
		WEDD.			
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 great			
☐ 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			



	Fight (Round no.): Room:	3 Stage: 3 Problem no.: 7
Scoring Guideline	25 Juror: <u>Lat Vene Cham</u> s	
	Jaiot.	0.11111
application of appropriate mathematics • reas	theories and principles of the problem • an explorable experimental technique to gather and recognishmental findings to draw suitable conclusions to the manner	rd 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.	erstanding of the presented concepts, theories and onent critiqued the experimental technique used a lights and weaknesses of the report	principles • the opponent understood the nd questioned the validity of the data • the
A review should show that:		A company a the reviewer appreciated the
important aspects (especially the controversian	To summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review the reporter and the opponent	ridence (not just superficial observations) •
The grade for each of the three teams co	nsists of a partial grade for physics, presentat	ion and for their specific role.
 The reporter, opponent and reviewer ea Consider the following suggestions to accompanies 	chistart with 5 points.	The state of the s
 Select each partial grade from each secti 	on and write it in the corresponding box.	
Don't punish missing 'answers' when no	questions were posed or not finding shortcom	nings if there were none to find.
Rep.: 5	Opp: PL 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach ☐ Validity of conclusions
☐ Validity of conclusions ☐ Accurate answers	Validity of conclusions Accurate answers	Accurate answers
(1)		Presentation ±1. +0.5
resentation	X/	Clear and understandable
☐ Clear and understandable ☐ Appropriate manner	Clear and understandable Appropriate manner	Appropriate manner
□ Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	 Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ 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

6 . 6 . 1 . 1	Fight (Round no.):
Scoring Guideli	nes Juror: S. Limke

		3 Stage: 3 Problem no.: /
Scoring Guideline	Juror: S. Limkumnurd s	Signature: Lind Crv
application of appropriate mathematics • reason	theories and principles of the problem • an explorable experimental technique to gather and reconstructions of the manner	ord 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	rstanding of the presented concepts, theories and onent critiqued the experimental technique used a gths 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 controversial	e summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review the reporter and the opponent	vidence (not just superficial observations) •
The reporter, opponent and reviewer ear Consider the following suggestions to accomplished to be select each partial grade from each section between the property of the partial grade from each section between the property of the partial grade from each section between the property of t	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers 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	Reviewer ±1 Provides a thorough review of
Quality of experimental technique(s)	Response to the reporter's solution	report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both 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 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



Round: Room: 3 Fight Assistants: Jan Juli moosik Rojnapa Tharamas

		Stage 1			Stage 2			Stage 3			Stage 4	
Team		AUT	AUS				445	POL	AUT			
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
František kundracik	7	6	7	5	6	9	4	8	7			
Andrey Shchefnikov	6	5	5	3	5	8	3	6	7			
Felicia Ullstad	8	6	5	3	9	7	3	6	7			
lgor Timoshchenko	6	6	5	4	5	8	3	8	6			
lat Neng Chan	7	6	5	6	6	7	4	7	6			-
Surachate Limkunnerd	6	5	6	5	5	7	3	8	7			
Acting Team Member	Radost Naszkiewioz	Amir Dellali	Kevin Zhang	Markus Niese	Elizabeth Cox	Anna Wald	Kevin Zhang	Radost Waszkiewicz	Markus Niese			
Rejected Problems	7. Shad	led Pole			2				×			
Accepted Problem	6 Magn	us Glider		12 Thick	k lens		7 sh	aded Pole				

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

	~3	4 1 1
Scoring Guideline	Fight (Round no.): Room: Buror: Loke shev	Signature:Problem no.:
application of appropriate mathematics • reas	theories and principles of the problem • an exponental technique to gather and receimental findings to draw suitable conclusions to the manner	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 enent critiqued the experimental technique used a engths 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 controversia	The summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each section 	on and write it in the corresponding box. questions were posed or not finding shortcor	mings if there were none to find.
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 Reporter ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression Opponent ±1	Presentation ±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	☐ Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both t reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	☐ Draws attention to points 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 see archive your partial grades – please

Final Grade: Opponent

☐ Contribution to the discussion

Final Grade: Reporter

do not bend

Final Grade: Reviewer

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



	3	4 1 12
Scoring Guideline	Fight (Round no.): Room: _ Sue NAMER :	Stage: Problem no.: 13
	Juror: 248 14171614	Signature:
application of appropriate mathematics • reas	theories and principles of the problem • an exp onable experimental technique to gather and rec erimental findings to draw suitable conclusions ble manner	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 and onent critiqued the experimental technique used anyths 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 review the reporter and the opponent	vidence (not just superficial observations) •
The grade for each of the three teams of	onsists of a partial grade for <i>physics</i> , <i>presenta</i>	tion and for their specific role
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 	ch start with 5 points.	
Rep.: 5	Opp.: Don 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
Scientific approach	Scientific approach Validity of conclusions	Scientific approach Validity of conclusions
☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions ☐ Accurate answers	Accurate answers
Accurate answers	Account distress	7500
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 8 8 +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	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 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	Guidel	lines

Fight (Round no.):	3 Room:	Stage: Problem no.:
Juror: HOMOSTRE!	MIHALY	Signature: None Stand

• 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 shortco	mings if there were none to find.
Rep.: 5	Opp.:5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 +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 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 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



Scoring Guidelines	Fight (Round no.): 3 Room: 4 Stage: 1 Problem no.: Flung-Chih Kan Signature: Signature:
application of appropriate mathematics • reasonable	s and principles of the problem • an explanation of the observed phenomena • an experimental technique to gather and record data (or demonstrate the phenomena if ral findings to draw suitable conclusions • an attempt to communicate difficult or ner

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.: 1/5	Opp.: 71-	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	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 ste				
☐ Contribution to the discussion		do not bend				



	Fight (Round	no.): 3	Room: _	4 Stage	: _/ Probler	n no.: 13
Scoring Guidelines	Juror: <u>0</u>	NEILL	S	ignature:	190 hour	1
A report should include: • a presentation of the appropriate concepts, the application of appropriate mathematics • reasonal appropriate) • linking of theoretical and experim complex ideas in an effective and understandable reference.	ble <mark>experimental te</mark> nental findings to d	chnique to gath	er and reco	ord data (or der	nonstrate the phe	nomena it
An opposition should show that: • the opponent challenged the reporter's understand appropriate mathematics presented • the opponent opponent appreciated and highlighted the strength	nt critiqued the expe	rimental techni	neories and que used a	i <i>principles</i> • the nd questioned	ne opponent unde the <i>validity</i> of the	rstood the data • the
A review should show that: • the reviewer succeeded in giving an objective so important aspects (especially the controversial on such personal opinions were informative, non-triviprinciples and appropriate mathematics used by the	es) • the reviewer's ial and demonstrate	<i>personal opinio</i> d, where possibl	n was in ev	vidence (not jus	st superficial obse	rvations) •
 The grade for each of the three teams consists. The reporter, opponent and reviewer each consider the following suggestions to add to Select each partial grade from each section. Don't punish missing 'answers' when no que 	start with 5 points o or deduct from t and write it in the	he initial 5 poi corresponding	nts. box.	المانسلولولولولولولولولولولولولولولولولولولو	pane.	d.
5	pp:		5	Rev.:	加上	5
☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ ☐	hysics ±3 Correct and re Scientific appro Validity of con Accurate answ	levant physic oach clusions	1	☐ Scientifi	and relevant pl c approach of conclusions	
	resentation ± Clear and unde Appropriate m Overall impres	erstandable lanner	1	1	nd understanda riate manner	ble of
Reporter ±1	pponent ±1		2	Reviewer		+/
Quality of experimental technique(s)	Response to the solution	ne reporter's		☐ Provide report a	s a thorough re and discussion	view of
□ Structure □	Shows the stro	ong and weak	points	☐ Express topics p	es own opinion resented or dis	about cussed
Explanation of formulae and symbols	Finds shortcor	nings or erro	rs in	Relevan	ce of questions r and the oppo	s to both the
Appropriate models, conformity of dimensions	- ·	he questions		☐ Draws a	ttention to poi	nts missed
Slides, on-site experiments, audio, video, as appropriate	Contribution t	o the discuss	ion	Serie Schoolsen in	eporter or the	
References, proper citations of ideas and input of others				This sh	eet will be collect	scan it and
☐ Novelty of the report				archive	your partial by	les – biegge
☐ Contribution to the discussion				do not	bend	
Final Grade: Reporter 5	Final Grade: Opp	onent	5 Revised	Final Grad	e: Reviewer k and approved by E	C on 2011-11-03

					. 13
	Fight (Round	d no.): <u>3</u>	Room: _	Stage:	Problem no.:
Scoring Guideline	25 Juror:	Uno	S	ignature:	Jes.
A report should include: • a presentation of the appropriate concepts, tapplication of appropriate mathematics • reason appropriate) • linking of theoretical and expendence complex ideas in an effective and understandab	onable <mark>experimental te</mark> erimental findings to c	chnique to gathe	er and reco	ord data (or demon	strate the phenomena if
An opposition should show that: • the opponent challenged the reporter's under appropriate mathematics presented • the opponent appreciated and highlighted the strength.	onent critiqued the expe	erimental technic	eories and que used a	I principles • the ond questioned the	pponent understood the validity of the data • the
A review should show that: • the reviewer succeeded in giving an objective important aspects (especially the controversial such personal opinions were informative, non-t	l ones) • the reviewer's trivial and demonstrate	personal opinion ed, where possible	n was in ev	vidence (not just su	perficial observations) •
principles and appropriate mathematics used b	y the reporter and the	opponent		0	
The grade for each of the three teams con The reporter, opponent and reviewer each Consider the following suggestions to ad Select each partial grade from each section Don't punish missing 'answers' when no Rep.:	ch start with 5 points Id to or deduct from to on and write it in the	the initial 5 points corresponding d or not finding	box. shortcon	مانسان المانسان من مسروب	e none to find.
Physics ±3 Correct and relevant physics Scientific approach	Physics ±3 Correct and re	elevant physics	5	☐Scientific a	
	Validity of con Accurate answ Presentation	vers		Accurate a Presentatio	nswers
Appropriate manner overall impression	Appropriate m Overall impres	nanner		Appropriat Overall imp	1111
Reporter ±1	Opponent ±1			Reviewer ±	188
Quality of experimental technique(s)	Response to to solution	he reporter's		Provides a report and	thorough review of discussion
☐ Structure	☐ Shows the stre	ong and weak	points	Expresses of	own opinion about ented or discussed
Explanation of formulae and symbols	Finds shortcon	mings or error	s in	Relevance	of questions to both the
Appropriate models, conformity of dimensions	Relevance of t	the questions		☐ Draws atte	ntion to points missed orter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution t	o the discussi	on		
References, proper citations of ideas and input of others				This sheet	will be collected by the ant, so we can scan it and
□ Novelty of the report				archive yo	ur partier o
☐ Contribution to the discussion				do not be	10
Final Grade: Reporter	Final Grade: Opp	oonent	Revised	Final Grade: I	Reviewer approved by EC on 2011-11-03

Canina	Carid	
Scoring	Guia	eimes

ight (Round no.):	3	Room:	4	_ Stage: _	2 Problem no.:	16
uror: Un	D		Signatu	re:	(Sp. ?	-

• 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.

	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Thailand 5	Opp.: 18an 5	Rev.: <u>UK</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
- Overall Impression	Overall impression 7	
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	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 grad
☐ 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 Guidelines

ight (Round no.):	3	_ Room:	4	_ Stage:	2	_ Problem no.:	_
uror: <u>O'NE</u>	THE		Signatu	ire:	PgO.	Mull	-00

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.: IRAN 5	Rev.: <u>UK</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
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 B
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



Scoring Guidelin		Stage: Z Problem no.: 16
A report should include: • a presentation of the appropriate concepts, application of appropriate mathematics • rea	, theories and principles of the problem • an exp sonable experimental technique to gather and rec perimental findings to draw suitable conclusions	planation of the observed phenomena • an 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	lerstanding of the presented concepts, theories an conent critiqued the experimental technique used engths 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 controversi	ive summary of the performances the reporter ar al ones) • the reviewer's personal opinion was in e i-trivial and demonstrated, where possible, the rev by the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer e Consider the following suggestions to a Select each partial grade from each sec 	onsists of a partial grade for <i>physics, presenta</i> ach start with 5 points. Ida to or <i>deduct</i> from the initial 5 points. Ition and write it in the corresponding box. If questions were posed or not finding shortcomes.	
Rep.: 5	Opp: IR 5	Rev :
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
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 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 after IOC feedback and approved by EC on 2011-11-03

Scoring G	Guidelines
-----------	------------

	Fight (Round no.): Room: _	Stage: 2 Problem no.: 16
Scoring Guideline	Juror: HO MOSTRET MINARY S	Signature:
application of appropriate mathematics • reason	theories and principles of the problem • an exponable experimental technique to gather and recommental findings to draw suitable conclusions alle manner	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 stren	rstanding of the presented concepts, theories and onent critiqued the experimental technique used a gths 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 controversial	e summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review the reporter and the opponent	vidence (not just superficial observations) •
The reporter, opponent and reviewer ear Consider the following suggestions to ad Select each partial grade from each section.	d to or deduct from the initial 5 points.	
	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
Clear and understandable Appropriate manner Overall impression	Clear and understandable Appropriate manner Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the
☐ Appropriate models, conformity	the report Relevance of the questions	reporter and the opponent
of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		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



Scoring Guidelines

ight (Round no.): Ro	oom: 4	_ Stage: 🏂	_ Problem no.: _	18
WARIER	. Signatu	re: SA	apier	

-	2			
Α	report	shou	ld inc	lude

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

	11	13			
The reporter, opponent and reviewer ea	င်္ကုနtart with 5 points.				
Consider the following suggestions to add to or deduct from the initial 5 points.					
 Select each partial grade from each section 	on and write it in the corresponding box.				
 Don't punish missing 'answers' when no 	questions were posed or not finding shortcor	nings if there were none to find.			
Rep.: Forthan 5	Opp: Abdollahi 5	Rev.: Doolson 5			
Jeer asymany	Mal	11/12			
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			
		WIEDD:			
Presentation £1 // 1	Presentation ±1	Presentation ±1			
☐ Clear and understandable	Clear and understandable	Clear and understandable			
☐ Appropriate manner	Appropriate manner	Appropriate manner			
□ Overall impression	Overall impression	Overall impression			
Divergillimplession/	Ranged of has Intra	78 // //			
Reporter ±1	Opponent ±1	Reviewer ±1 66			
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		fight assistant, so we can see archive your partial grades — please do not bend			
☐ Contribution to the discussion	5	do not ben			

Final Grade: Opponent

	Rogert Y Royert !!
oom:	Stage: Problem no.: 16
and reco	anation of the observed phenomena • an ard data (or demonstrate the phenomena if • an attempt to communicate difficult or
	principles • the opponent understood the nd questioned the validity of the data • the
vas in ev	opponent • the reviewer appreciated the idence (not just superficial observations) • wer's understanding of concepts, theories,
ox. nortcom	ings if there were none to find. Rev.: 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
oints	report and discussion Expresses own opinion about topics presented or discussed
n	Relevance of questions to both the reporter and the opponent
n	Draws attention to points missed by the reporter or the opponent
Revised a	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

	Fight (Round no.): Room: _	4 Stage: 2 Problem no.:
Scoring Guideline	^	Signature: Works
	341011	
A report should include: • a presentation of the appropriate concepts, the application of appropriate mathematics • reason appropriate) • linking of theoretical and experimental complex ideas in an effective and understandable.	nable experimental technique to gather and rec imental findings to draw suitable conclusions	ord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's unders appropriate mathematics presented • the opponent appreciated and highlighted the streng	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:	f.i. f	d avvenuest a the reviewer appreciated the
 the reviewer succeeded in giving an objective important aspects (especially the controversial of such personal opinions were informative, non-traprinciples and appropriate mathematics used by 	ones) • the reviewer's <i>personal opinion</i> was in e ivial and demonstrated, where possible, the revi	vidence (not just superficial observations) •
	sists of a partial grade for physics, presenta	tion and for their specific role.
 The reporter, opponent and reviewer each Consider the following suggestions to add 	i start with 5 points. I to or deduct from the initial 5 points.	
· Select each partial grade from each section	n and write it in the corresponding box.	to find
Don't punish missing 'answers' when no'q	uestions were posed or not finding shortcor	mings it there were none to find.
Rep.: 5	Opp::5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
□ Validity of conclusions	☐ Validity of conclusions	☑ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
The state of the s	Presentation ±1	Presentation ±1
, clear and understandable	Clear and understandable	Clear and understandable Appropriate manner
☐ Appropriate manner ☐ Overall impression	Appropriate manner Overall impression	Overall impression
· 1(1)	_ Overall impression	
Reporter ±1	Opponent ±1	Reviewer ±1 / /
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial g.
☐ 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

	Fight (Pound no.): 3 Room:	4 Stage: 3 Problem no.: 1
Scoring Guidelines		ignature: Who ke
A report should include: • a presentation of the appropriate concepts, the application of appropriate mathematics • reasons appropriate) • linking of theoretical and experincomplex ideas in an effective and understandable	able experimental technique to gather and reco mental findings to draw suitable conclusions	rd data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's underst appropriate mathematics presented • the oppone opponent appreciated and highlighted the strengt	ent critiqued the experimental technique used a	principles • the opponent understood the nd questioned the validity of the data • the
A review should show that: • the reviewer succeeded in giving an objective s	summary of the performances the reporter and	i opponent • the reviewer appreciated the
important aspects (especially the controversial or such personal opinions were informative, non-trin principles and appropriate mathematics used by t	nes) • the reviewer's <i>personal opinion</i> was in eviction was in eviction was in eviction was in eviction.	vidence (not just superficial observations) •
 The grade for each of the three teams cons The reporter, opponent and reviewer each Consider the following suggestions to add Select each partial grade from each section Don't punish missing 'answers' when no qu 	start with 5 points. to or deduct from the initial 5 points. and write it in the corresponding box.	
Rep.: 5	Opp.:5	Rev.: 5
☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1 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 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 Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

Scoring Guideline		Stage: 3 Problem no.:
A report should include: • a presentation of the appropriate concepts, to application of appropriate mathematics • reaso appropriate) • linking of theoretical and experiments of the complex ideas in an effective and understandable.	nable experimental technique to gather and recorimental 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 streng	standing of the presented concepts, theories and nent critiqued the experimental technique used a opths 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 controversial	e summary of the performances the reporter an ones) • the reviewer's personal opinion was in e rivial and demonstrated, where possible, the revi	vidence (not just superficial observations) •
 The reporter, opponent and reviewer each Consider the following suggestions to add Select each partial grade from each section Don't punish missing 'answers' when no'ce Rep.: Select each partial grade from each section Don't punish missing 'answers' when no'ce Rep.: Select each partial grade from each section Select ea	to or deduct from the initial 5 points.	
Reporter ±1	Opponent ±1	Reviewer ±1 & 6
☐ Quality of experimental technique(s) ☐ Structure ○ ✔	☐ Response to the reporter's solution☐ Shows the strong and weak points	Provides a thorough review of report and discussion Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	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 archive your partial grades – please
☐ Novelty of the report	6	archive your partial grounds do not bend
Contribution to the discussion	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-

o.:	
• an ena if ult or	
ult or	
od the	
r • the	
ed the	
ed the ions) • eories,	
_	
5	
0	
cs	
O	
w of out seed	
out seed	
both the t	
missed conent	
by the	
by the n it and - please	
2011-11-03	

	Fight (Round no.): Room: _	4 Stage: 3 Problem no.: 1
Scoring Guideline	Juror: Ho MOSTRE , HITHER !	Signature:
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	ord 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 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
important aspects (especially the controversia	The summary of the performances the reporter and some of the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review of the reporter and the opponent	vidence (not just superficial observations) •
The reporter, opponent and reviewer each consider the following suggestions to accept select each partial grade from each sections.	onsists of a partial grade for physics, presental chistart with 5 points. Id to or deduct from the initial 5 points. On and write it in the corresponding box. questions were posed or not finding shortcor	
Rep.: Inn 5	Opp:: UK 5	Rev.: HKAIA Awo 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 Availably of conclusions Accurate answers
Presentation ±1 Clear and understandable Appropriate manner overall impression Reporter ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression Opponent ±1	Presentation ±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	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 Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



	Fight (Round no.): . 3 Room:	1 Stage: 3 Problem no.: 1
Scoring Guideline	Juror: Hung-Chih Kans	a
	the state of the s	
A report should include: • a presentation of the appropriate concepts, t	theories and principles of the problem • an expl	anation of the observed phenomena • an
annlication of appropriate mathematics • reason	nable experimental technique to gather and reco rimental findings to draw suitable conclusions	ord data (or demonstrate the phenomena if
An opposition should show that:		A principles a the apparent understood the
 the opponent challenged the reporter's under appropriate mathematics presented • the opponent appreciated and highlighted the stren 	rstanding of the presented concepts, theories and nent critiqued the experimental technique used a gths and weaknesses of the report	nd questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:	a summer of the performances the reporter an	d annount • the reviewer appreciated the
important aspects (especially the controversial	e summary of the performances the reporter and ones) • the reviewer's personal opinion was in exivial and demonstrated, where possible, the review of the reporter and the opponent	vidence (not just superficial observations) •
The grade for each of the three teams co	nsists of a partial grade for physics, presentat	tion and for their specific role.
• The reporter, opponent and reviewer ear	ch/start with 5 points.	
 Consider the following suggestions to ad Select each partial grade from each section 	on and write it in the corresponding box.	
Don't punish missing 'answers' when no'	questions were posed or not finding shortcon	nings if there were none to find.
Rep.: 5	Opp:5	Rev.:
	Mal	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 Appropriate manner Appropriate manner
Overall impression	/ Overall impression	Coverall impression
Reporter ±1	Opponent ±1	Reviewer ±1 []
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		fight assistant, so we can be archive your partial grades – please do not bend

Final Grade: Opponent

 $\hfill\Box$ Contribution to the discussion

in exploration of the observation featurement is an insplication of the instruction of th			
in exploration of the observation featurement is an insplication of the instruction of th			
in exploration of the observation featurement is an insplication of the instruction of th	oom: 4 Stage: 3 Problem no.:		
Interest of the commence of the placement of the placement of the commence of	Kan Signature:		
revent and apponent * the reviewer appreciated the was in evidence (nex) just superficial observations) + the reviewers appreciated with the reviewer's materiality of concepts, theories, there were incompleted by the reviewer's materiality of concepts, theories, therefore, the reviewer's materiality of concepts, theories, therefore, the reviewer's materiality of concepts, theories, and relevant physics. Physics 13	an explanation of the observed phenomena • an and record data (or demonstrate the phenomena if dusions • an attempt to communicate difficult or		
and in evidence (note) list superfield observations) * he reveloper's understanding of concepts, therefore, scenation and for their specific role. IX. IX. IX. IX. IX. IX. IX. I	pries and principles • the opponent understood the e used and questioned the validity of the data • the		
Description and relative to the control of the cont	orter and opponent • the reviewer appreciated the was in evidence (not just superficial observations) • the reviewer's understanding of concepts, theories,		
Physics ±3 Physics ±3 Physics ±3 Physics ±3 Progret and relevant physics Septific approach Divisition ±1 Clear and understandable to Appropriate manner Appropriate manner Presentation ±1 Provides a thorough review of report and discussion Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent This sheet will be collected by the This sheet will be collected by the reporter or the opponent This sheet will be collected by the	esentation and for their specific role.		
Physics ±3 Corriect and rejevant physics	s. ox.		
Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend Final Grade: Reviewer	Rev.:		
Draws attention to points missed by the reporter or the opponent This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend Final Grade: Reviewer			
Draws attention to points missed by the reporter or the opponent This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend Final Grade: Reviewer			
fight assistant, so we archive your partial grades – please do not bend Final Grade: Reviewer	Draws attention to points missed by the reporter or the opponent		
Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-03	fight assistant, so we archive your partial grades – please		
	Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-03		

Cooring Guidaling		4 Stage: 3 Problem no.: 1
Scoring Guideline	Juror: <u>O'NEICC</u>	Signature: 190 Meill
application of appropriate mathematics • reason	theories and principles of the problem • an exponable experimental technique to gather and recommental findings to draw suitable conclusions to the manner	ord 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	rstanding of the presented concepts, theories and onent critiqued the experimental technique used a gths 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 controversia)	e summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review the reporter and the opponent	vidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each section 	nsists of a partial grade for physics, presental chistart with 5 points. If to or deduct from the initial 5 points. on and write it in the corresponding box. questions were posed or not finding shortcor	
Presentation ±1.	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner Overall impression	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	Reviewer ±1 6 6
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	 Shows the strong and weak points of the report 	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report Relevance of the questions	Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend

Final Grade: Opponent

Final Grade: Reporter

Final Grade: Reviewer

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

	Fight (Round no.):	3 Room:	→ Stage:	Problem r	no.:
Scoring Guidelines	Juror: Ulero		Signature:	1572c	2
3	Juloi.		ABILICATE T		· .
A report should include: • a presentation of the appropriate concepts, theo application of appropriate mathematics • reasonable appropriate) • linking of theoretical and experime complex ideas in an effective and understandable mathematics.	ole experimental technique to gental findings to draw suitable	gather and reco	ord data (or demo	nstrate the pheno	mena if
An opposition should show that: • the opponent challenged the reporter's understand appropriate mathematics presented • the opponent opponent appreciated and highlighted the strengths.	t critiqued the experimental te	<i>chnique</i> used a	d <i>principles</i> • the and questioned the	opponent underst validity of the da	ood the
A review should show that:	14 70 PM				, , , , ,
 the reviewer succeeded in giving an objective su important aspects (especially the controversial one such personal opinions were informative, non-trivio principles and appropriate mathematics used by the 	es) • the reviewer's <i>personal op</i> al and demonstrated, where po	oinion was in e	vidence (not just s	superficial observa	itions) •
The grade for each of the three teams consist	ts of a partial grade for <i>phys</i>	ics, presenta	tion and for their	specific role.	
 The reporter, opponent and reviewer each's Consider the following suggestions to add to 	tart with 5 points.	noints.	A CONTRACTOR OF THE CONTRACTOR		
Select each partial grade from each section a	and write it in the correspon	ding box.		Jan Jan	
Don't punish missing 'answers' when no que	stions were posed or not fin	ding shortcon	nings if there we	re none to find.	
Rep.: 5 0	pp: UK	5	Rev.: 1/	Agrilan S	5
Physics ±3	rysics ±3	K	Physics ±3	notice of	
☐ Correct and relevant physics	Correct and relevant ph	vsics	V 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	d relevant phy	sics
1 111 11 11 1	Scientific approach	Second Second	☐ Scientific a	1	
□ Validity of conclusions □ □		-	D: Validity of	conclusions	`
	Accurate answers	(Sec.	Accurate	hswers	1
The state of the s	esentation ±1		Presentation	10	1
Clear and understandable	Clear and understandab	le /	3 (understandabl	e i
☐ Appropriate manner ☐ Overall impression	Appropriate manner Overall impression	(Overall im	1111	Pla
	17 pt 4.0			13/13	
Reporter ±1	pponent ±1		Reviewer ±	:1 # #	
Quality of experimental technique(s)	Response to the reporte solution	er's	Provides a report and	thorough revi d discussion	ew of
☐ Structure ☐	Shows the strong and w of the report	eak points	Expresses topics pre	own opinion a sented or discu	bout Issed
Explanation of formulae and symbols	Finds shortcomings or e the report	rrors in	☐ Relevance	of questions to and the oppone	o both the
Appropriate models, conformity of dimensions	Relevance of the questi	ons	☐ Draws att	ention to point porter or the op	s missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the disc	ussion			
References, proper citations of ideas and input of others			This sheet	t will be collected	an it and - please
☐ Novelty of the report			archive y	our parties o	
☐ Contribution to the discussion			do not be	5110	
Final Grade: Reporter	inal Grade: Opponent	A Revised	Final Grade:	Reviewer and approved by EC o	on 2011-11-03

<u></u>		
en if or		
ne ne		
ne •		
f		
h the		
he and ase		
1-11-03		

Round: Room: 4 Fight Assistants: Room Phinjaroemphan, Adiflup Butrabusi

		Stage 1			Stage 2			Stage 3			Stage 4	
Team .		0	Dass	D	0::::	Day	Don	Onn	Rev	Pop	Opp	Rev
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Nev
Valentin Lobyshev	5	6	8	4	6	7	8	6	7			
Susan Napiex	5	5	6	4	5	7	6	6	5			
Miha'ly Hömöstsei	6	5	77	5	6	6	4	7	5			
Hung-Chin Kan	4	6	6	4	5	7	4	6	7			
Philip O'Neill	5	5	P	4	5	8	7	7	7			
Uno Uno	4	6	7	5	В	5	6	Ь	Ь			
Acting Team Member	Tow Dodd	Dian Panalegan	Ghosel Naghard	Dithen Jersesu	Ana hita Abdollahi	Doninic Botson.	Anahita Abdollahi	Tom Dadd	Pian Pawallow			
Rejected Problems				No. 4 L No.11 Ca	iquid Fill t's Whislee	m motor						
Accepted Problem	No.13 M	lagnetic 9	Pendulan	No.16 W	let and ,	Dork.	No.1	Packing	t-			



Fight (Round no.):	3	Room: 5	Stage:	Problem no	n: 9
right (hound holy)		1 00		1 1/	
Juror: Kath	w T	lealar signa	ture:	w	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 shortcon	nings if there were none to find.						
	Rep.: Sack 5	Opp.: Dimitrie 5	Rev.: Iruga 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						
bod	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 & Au -						
	Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion Ly symman						
	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	his presentation.	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 2 2 after IOC feedback and approved by EC on 2011-11-03						



	Fight (Ro	und no.):3	_ Room:5	_ Stage:	_ Problem no.: ^
Scoring Guidelines	Juror:	Nirut	Signatu	ire: Muf	s

Scoring Guideline	es Juror: Nirut	Signature: Wuf
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	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 and onent critiqued the experimental technique used and the concepts 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 controversia	re summary of the performances the reporter and ones) • the reviewer's personal opinion was in estrivial and demonstrated, where possible, the review the reporter and the opponent	vidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 	on sists of a partial grade for physics, presental chistart with 5 points. Id to or deduct from the initial 5 points. On and write it in the corresponding box. questions were posed or not finding shortcor	
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	Overall impression Opponent ±1	Overall impression Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	 Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both th reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties a
☐ Contribution to the discussion		do not bend

5

Final Grade: Opponent

Final Grade: Reporter

Final Grade: Reviewer

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

C	C .: 1	1 - 112
Scoring	GUIA	eunes
	0	0,,,,,

Fight (Round no	1: 3.1	Room:	5 Sta	ge: 1	Problem no.:	9
Juror: Olga	~		nature: _	Oh	e	

• 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 shortco	mings if there were none to find.
Rep.: <u>New 2</u> 5	Opp.: Ro 5	Rev.: Kenya 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 + 0, 25
Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 -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 give
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer dafter IOC feedback and approved by EC on 2011-11-03



ight (Round no.): _	3	Room:	5	_ Stage:	1	_ Problem no.:	9	
uror: Andres	te	Sshin	Signatu	ire: N	anu	ures _		

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.

Don't punish missing 'answers' when no'	questions were posed or not finding shortcom	mings if there were none to find.
Rep.: New realised 5	Opp: Romanta 5	Rev.: Kenya 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 6 -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 stor
☐ 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



ight (Round no.):	3 Room:	5	Stage: _	1	Problem no.: _	9	
ror STAMO AU	PAVOS	Signature	. /	Pau	-3		

A report should include:

• 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

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.: NEW ZEALAND 5	Opp.: ROMANIA 5	Rev.: <u>KENYA</u> 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
	☐ Scientific approach	☐ Scientific approach	
■ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1 +0,5	Presentation ±1	Presentation ±1	
☐ Clear and understandable	🖽 Clear and understandable		
	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	Overall impression	☐ Overall impression	
	- CHORT	- time	
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 Broad	
☐ Contribution to the discussion		do not bend	
@ graphs @			
Final Grade: Reporter	Final Grade: Opponent Final Grade: Opponent	Final Grade: Reviewer Settler IOC feedback and approved by EC on 2011-11-03	

9		
olem no.: _9_		
·		
nomena • an ohenomena if		
e difficult or		
nderstood the he <i>data</i> • the		
ne data • the		
producted the		
preciated the oservations) •		
epts, theories,		
le.		
find.		
- 5		
0		
physics		
ns		
0		
dable		
0		
review of n		
on about discussed		
ons to both the conent		
oints missed e opponent		
ected by the		
an scan it and		
rades – please		
5		
y EC on 2011-11-03		

ight (Ro	ound no.):	3	Room:	5	Stage:	1	Problem no.:	9,
uror:	Gima	Exner		Signature	e:	yhus		

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.

• Don't pullish missing answers when no	questions were posed of not finding shorted	8
Rep.: N2 5	Opp.: Ro 5	Rev.:
		1 136
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 E E E E
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
0.0\		Budaman 14 / /
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 Brown
☐ 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





ight (Round no.):	3	Room:	5	_ Stage:	2	Probler	n no.: _	16	
uror: Kally	1 To	selver!	Signatu	ıre:	kn	N			

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:

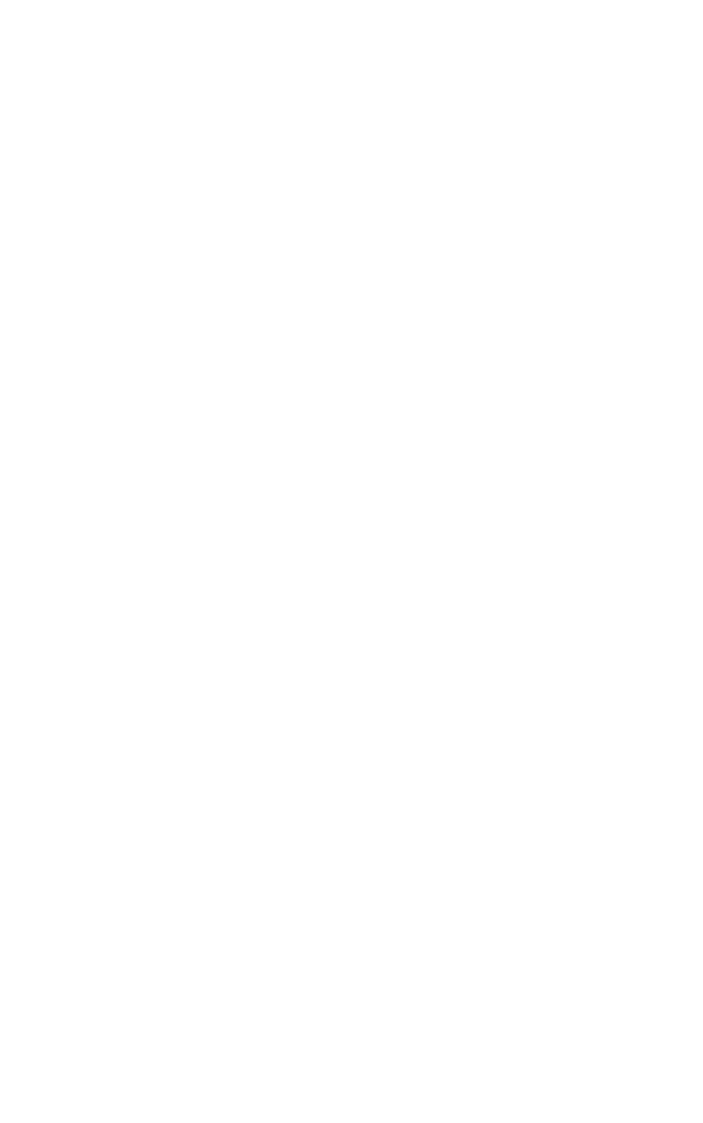
• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* and *principles* • the opponent understood the *appropriate mathematics* presented • the opponent *critiqued* the *experimental technique* used and questioned the *validity* of the *data* • the opponent appreciated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

Don't punish missing answers when no	questions were posed of not infamily shortest	inings in there were none to inian
Rep.: Alex very basic Romanin 5	Opp.: Xion Kenn 5	Rev.: Nich Nt , 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 (1) / fy()
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 +1
Quality of experimental technique(s)	Response to the reporter's solution	☐ Provides a thorough review of report and discussion L≠ Sommar
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	presentation missed major flaus & failled to engage	This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report	. 00	archive your partial grow
☐ Contribution to the discussion	. ~~	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

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



a	0 1	, ,	0
SCOVING		0	Inno
Scoring	UUIU	CI	IIIICS

ight (Rou	und no.): _	3	_ Room:	5	Stage: _	2	_ Problem no.:	16	
uror:	Niryt			Signat	ure:	maj	_		

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



0	0	0 0 1	10
SCO	rina	Guide	lines
	111119	UNINC	

Fight (Round no.): 3 Room:	5_Stage: 2_Problem no.: 16	5
Juror: Olga Inisheva	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

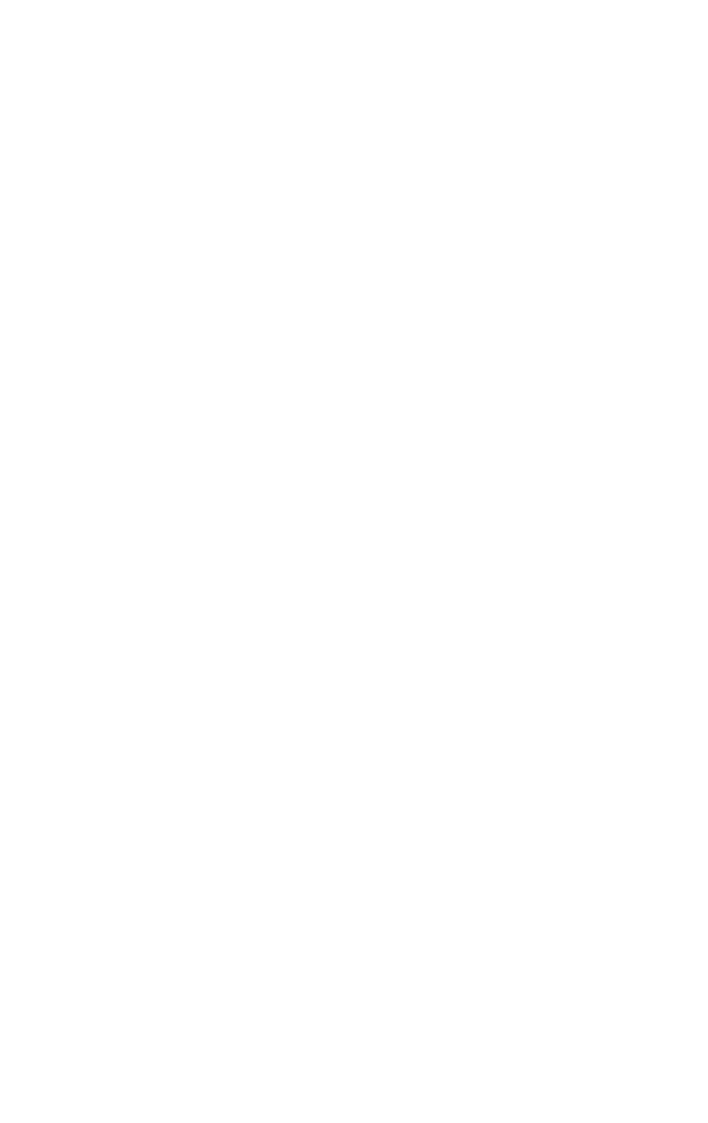
An opposition should show that:

• 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.: <u>8</u> 5	Opp.: <u>Ke</u> 5	Rev.: New Zealand 5
Physics ±3	Physics ±3	Physics ±3 +05
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	∀alidity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 +0,2	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
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	O 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 Revised	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



ight (Round no.): _	3	_ Room:	5	Stage:	2	Problem no.:	
uror: Aldre:	lees	show	Signatu	re:	Cai	ululus	

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

A report should include:

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

An opposition should show that:

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

A review should show that:

- The 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 	Don't punish missing 'answers' when no questions were posed or not finding snortcomings if there were none to find.					
Rep.: Romanto B adut 5	Opp.: Kenya 5	Rev.: Whe rectoud 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 gree				
☐ Contribution to the discussion		do not bend				
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer				



a	0		0 1	,	0
SCO	ring	GI	110	P	lines
			1 II WI		

ght (Round no.):	Room:	Stage:	2	_ Problem no.: 16	
Iror: STANI SCAU	PANOS	Signature:	,	Panol	

• 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.: POMANIA 5	Opp.: <u>KENYA</u> 5	Rev.: NEW ZEALAND 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 +1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 -1	Reviewer ±1 6 +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in	Relevance of questions to both the
	the report	reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial Brown
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 2	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



-		Fight (RC	una
Scoring	Guidelines	Juror:	a

Fight (Ro	und no.): _	3	_ Room:	_5_	Stage:	2	Problem no.: 16
Juror:	Gimes	e B	xwy.	Signatur	e: <i>(</i>	de	

• 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 linding shortco	illings if there were none to find.
Rep.: 5	Opp.: Kenya 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed 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	6 1	archive your partial grant
☐ Contribution to the discussion	(241)	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



ght (Round no.):	 5	Stage:	3	_ Problem	no.: 8	
ror: KZ.	Signature	: K	U	1/1	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

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.: NZ 5	Rev.: Romand 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 + /1	Presentation ±1		
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
🛕 Appropriate manner	☐ Appropriate manner	Appropriate manner "failed" is to		
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		
		archive your partier 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		



0			0 1	- A	0	
SCO	ring		IIA	OI	Inp	ζ
		UU	110			۷

Fight (Round no.): _	3	Room:	5	Stage:	3	Problem no.:	8	
luror: Ninut			Signature	9	wit			

• 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 it there were note to find.							
Rep.: KE 5	Opp.: NZ 5	Rev.: 20 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 grow					
☐ 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					



A				9 0
SCO	ring	(-11114	del	INPC
	IIIII	UUII	VI C I	

Fight (Round no.): <u>3</u>	Room: 5	_ Stage: 3	_ Problem no.:	8
uror: Olga Inishe	<u>vς</u> Signatu	re: Oli		

• 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.: New Zealand 5	Rev.: Romania 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	Presentation ±1	Presentation ±1 (0,2)	
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 + 0,75	Reviewer ±1 6 6 +0,75	
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 grand	
☐ 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	

ight (Round no.):	3	Room:	5	Stage:	3	Problem no.:	8	
wor. Andre	Ris	Why .	Signatur	e.	LAU	wun		

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.: Venyo 5	Opp: Mar realord 5	Rev.: Romono 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1 -1	Presentation ±1	Presentation ±1
☐ 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 8.
☐ 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

•		0 1	1 10
SCO	rina		elines
	IIIII	UUIU	

Fight (Round no.):	3	Room:	5	Stage:	3	Problem no.:	8
Juran STANISCAV		2 CONF	Signatur	α.	Pa	m 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.

Rep.: KENTAN 5	Opp.: N. ZEALAND 5	Rev.: POMAUIA 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 +1
Clear and understandable	Clear and understandable	🖾 Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 +1	Reviewer ±1 6 +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 NO MODEL?	☐ 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	Final Grade: Opponent Revised	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03



	Fight (Round no.): 3 Room:	5 Stage: 3 Problem no.: 8
Scoring Guidelin	es Juror: Gima Exner	
A report should include:		
application of appropriate mathematics • reas	theories and principles of the problem • an exponential technique to gather and receiverimental findings to draw suitable conclusions ble manner	cord data (or demonstrate the phenomena if
	erstanding of the presented concepts, theories an onent critiqued the experimental technique used ngths and weaknesses of the report	
A review should show that:	-	
important aspects (especially the controversion	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) •
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		
 Consider the following suggestions to an Select each partial grade from each sect 	ion and write it in the corresponding box.	
	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Kens 5	Opp.: V7 5	Rev.: 5
Physics 42	Physica 13	Physica +3
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach ☐ Validity of conclusions
□ Validity of conclusions	Validity of conclusions Accurate answers	Accurate answers
☐ Accurate answers	Accurate answers	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
Paramakallal []	Opponent +1	Reviewer ±1
Reporter ±1	Opponent ±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	
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
─ □ Novelty of the report		fight assistant, so we can be archive your partial grades – please

Final Grade: Opponent

do not bend

Final Grade: Reviewer

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

─ □ Novelty of the report

Final Grade: Reporter

 $\hfill \Box$ Contribution to the discussion

Round: Room: 5 Fight Assistants: Wanchelaen Pansanat, Taweesak Chaiyakhun

		Stage 1			Stage 2			Stage 3			Stage 4	
	New Zealand	Romania	Kenya	Romania	Kenya	New Zealand		New Zealand		D	0	D
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Kathryn Zealand	6	5	2	3	2	7	2	7	7			
Nimt Phssadee	5	5	4	4	3	6	3	6	6			
Olga Inisheva	5	5	3	3	3	7	3	8	7			
Andrei Klishin	6	4	2	3	2	7		8	7			
Stanislav Panos	6	5	5	3	2	7	2	7	7		<u>**</u>	
Ginha Exner	5	4	5	3	$\left(3\right)$	6	2	8	7			
Acting Team Member	Jack Tregidga	Dimitrie Mititela	Ingo Manjan	Alexandra Basut	Kjong Zhuang	Vicholas Lam	Kiong Zhuang	Mathew Randle	Anca Goldis			
Rejected Problems	_			_			_					
Accepted Problem	9 Hove	rcraft		(b) We	et and a	dark	8 Suga	ar and	Salt			

Signature Fight Assistant: Wancholan fonsawn. Double-checked with Scoring Guidelines by second Fight Assistant (signature):

		0	9	0
SCO	rina	Guia	P	lines
	uuug	UUIU		

Fight (Round no.):	Room:	6		- 45	Problem no.:
Juror: D.Keller		Signatur	e: //	110	Keller

• 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.: Chinas 5	Opp.: Brazil 5	Rev.: Greden 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 6				
☐ 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 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				
☐ 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				



	e	- 0 1	
CCO	KINA	GILLA	elines
ンしし	IIIII	Guiu	CIIIICS
		_ 0	

Fight (Round no.):	3_ Ro	om: <u>6</u>	_ Stage: <u></u>	Problem no.: _	9
Juror: <u>Dina</u>	Iradi	Signatu	ire: 1 20	ucle +	

• 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.

		1 22
Rep.: Thon your Cong 5	Opp.: Thioga Begggarati -	Rev.: Va annos hi
China V	Brozi	Sweden
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 g.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer dafter IOC feedback and approved by EC on 2011-11-03



	0	0 1	N O
SCO	rina	Guid	plinps
		OUIU	

ight (Round no.): _]][.	Room:	6.	Stage: _	I	Problem no.:	9.
uror: PANOŠOVA	DA60	MAR	Signatur	·e:	Vai	6.	

• 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

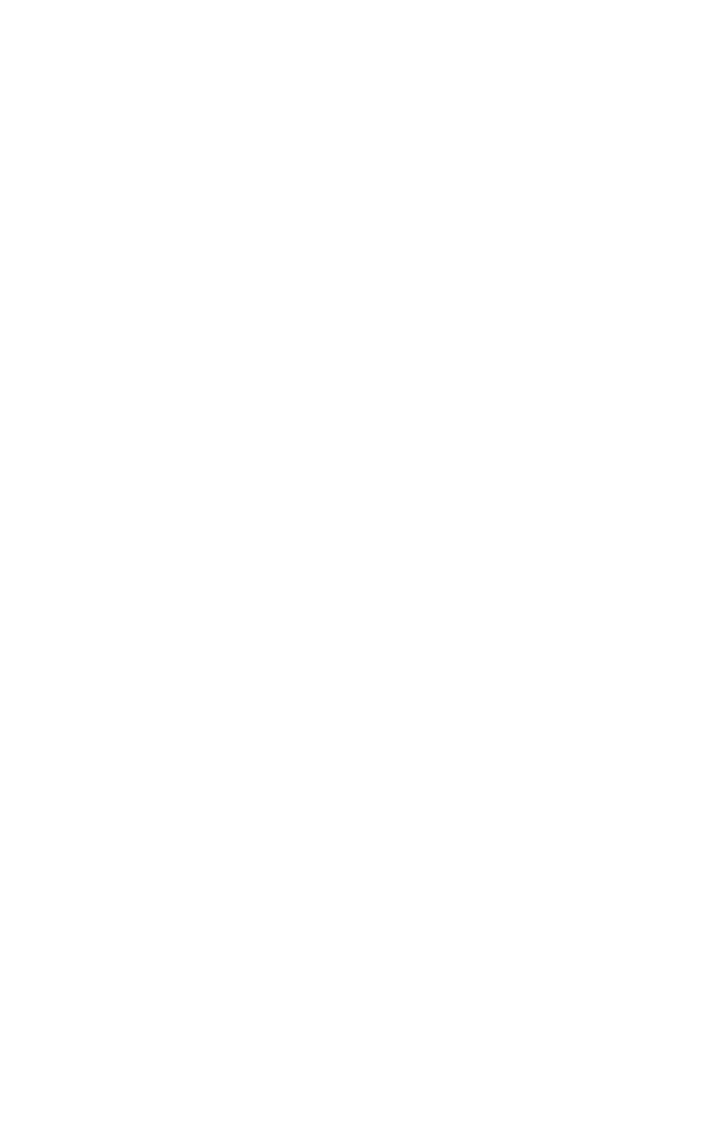
An opposition should show that:

• 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.

Son charmon manny anomala mian na		
Rep.: Chinas 5	Opp.: Brazil 5	Rev.: Sweden 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 +1/2	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 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 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



- 0		0 8	8 0
Scarin	$a \alpha G$	uido	linos
Scorir	IY U	uluc	

ght (Rour	nd no.): <u>3</u>	_ Room: _=	d #	Stage:	Problem no.: 9	Hovercrat
ıror:	Apicha	+ si	ignatur	. (1)	W/	

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

A report should include:

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

An opposition should show that:

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

A review should show that:

- The 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.: Brazi 5	Rev.: Sweden 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 4 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 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 grade
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



ight (R	ound no.): _	3	Room:	6	_ Stage	e: <u>1</u>	Problem no.:	9
uror: _	PENG	PAN		Signatu	re:	T. 7	engpan	

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

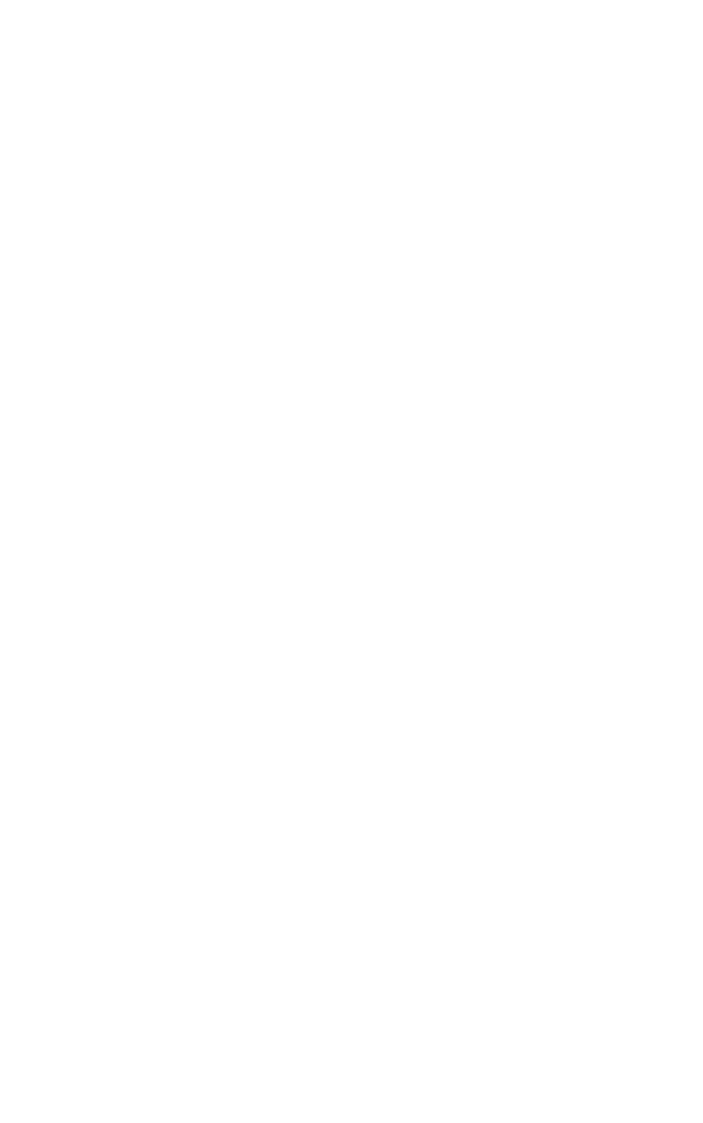
An opposition should show that:

• 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.: CN 5	Opp.: 8R 5	Rev.: 5 5
Physics ±3 6.5	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☑ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1.	Presentation ±1	Presentation ±1 0.5
☑ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 4 1.5
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in 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 grown
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer



nt (Round no.): _	3 Room	. 6	_ Stage:	_ Problem no.:	9
1	ER	Signatu	11	~	
	6.6				

A report should include:

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

An opposition should show that:

• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* and *principles* • the opponent understood the *appropriate mathematics* presented • the opponent *critiqued* the *experimental technique* used and questioned the *validity* of the *data* • the 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 shortco	omings if there were none to find.
Rep.: ling 5	Opp.: Bretil Things begannase 5	Rev.: Sauber 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 -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		fight assistant, so we can be archive your partial grades – please
☐ 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



	0 1	0 0
SCOVIDA	GILINO	IIMOC
Scoring	Guidel	

Fight (Round no.): _	3	Room:	6	Stage: _	2	Problem no.:	6
Juror: D. K.	elle	<u></u>	Signature	e: /6	20	Velle	-

• 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.

Don't punish missing answers when no	questions were posed of flot illuming shorteo	mings if there were none to find.
Rep.: <u>Sazis</u> 5	Opp.: Schweder 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 c	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 C	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 grades
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Fight (Re	ound no.):	3	Room:	6-	Stage: .	2	_ Problem no.:	6
Juror: _	Dina	ITO	di	Signature	:	1	200lus	

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 22	
Rep.: thiagal OF	Opp.: 1/by	Rev.: kehom	
Brazil 5	sweden 5	China 5	
	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	
		NEED DE	
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	
- (1)		11 18 18	
Reporter ±1	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	Expresses own opinion about topics presented or discussed	
☐ Explanation of formulae and	of the report	STATE OF THE PROPERTY OF THE P	
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	
	☐ Contribution to the discussion	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 5	Final Grade: Opponent	Final Grade: Reviewer	

Fight (Round no.): Room	n: Stage	e: 1 Problem no.:	6
Juror: PANOSOVA DAGHAR	Signature:	Pau.	

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.: Branil 5	Opp.: Sweden 5	Rev.: China 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	Presentation ±1	Presentation ±1
	☑ Clear and understandable	□ Clear and understandable
Clear and understandable 30 gp. Appropriate manner	Appropriate manner	☐ Appropriate manner
□ Overall impression	Overall impression	Overall impression
D Overall Impression	Overall impression	Broverum impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial 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



	- 0 1	11 0
Scoring C	suide	lines

ght (Round no.): _	3 Room:	#6	_ Stage:	Problem no.:	6 (maynus)
ror: Apich	Tre	Signatu	re. (A)	1 W	

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

An opposition should show that:

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

A review should show that:

- The 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 illiding shortco	mings if there were none to mid.
Rep.: Brazil 5	Opp.: Sweden 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 0.5	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 0.5	Opponent ±1	Reviewer ±1 6 0.5
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ 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 Jafter IOC feedback and approved by EC on 2011-11-03



ight (R	ound no.): _	3	Room:	6	Stage:	2	Problem no.:	_
uror:	PEMOS	MAN		Signatur	e:	7.5	Pengpan	

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.: 5	Opp.:5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics Scientific approach
Scientific approach	Scientific approach	☐ Scientific approach ☐ Validity of conclusions
☐ Validity of conclusions	☐ Validity of conclusions	Accurate answers
☐ 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
 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 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



	0 1	ПО
SCOVING	Guido	linoc
Scoring	duide	

ight (Round no.):	3	_Room:	6	_ Stage:	2	_ Problem no	6
uror: REGI	er		Signatu	ıre:	NO	~	

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

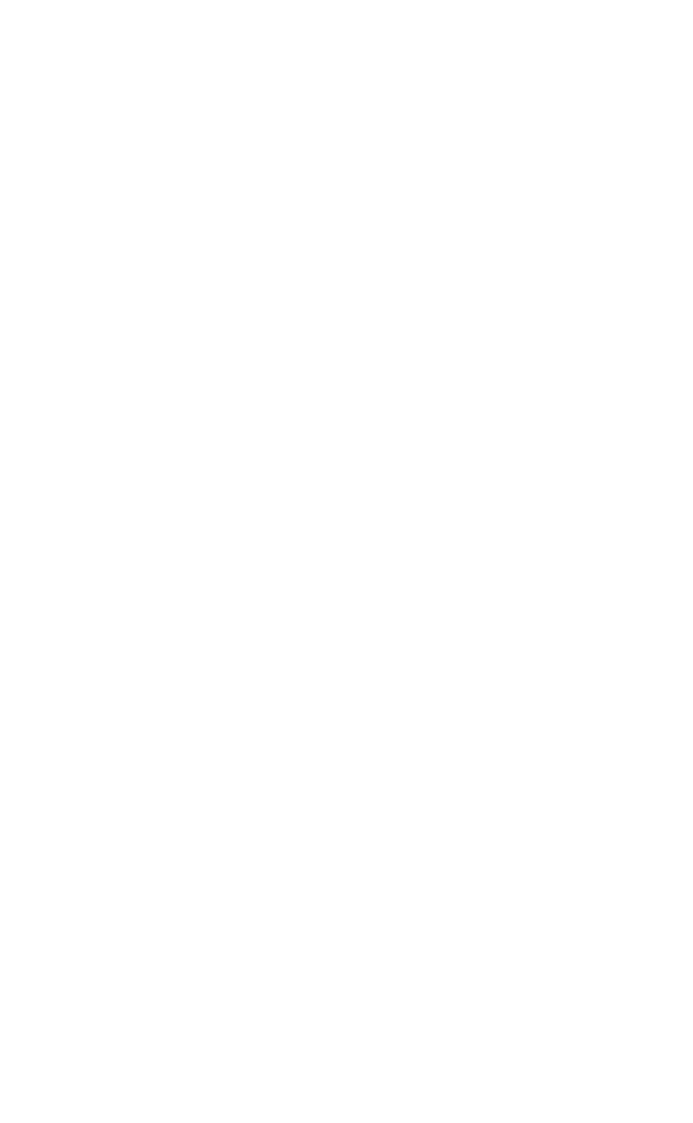
An opposition should show that:

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

A review should show that:

- The 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.: Brosse	Oppl: Sunder	Rev.: Rev.
Thiores Resument 5	Ivan Erilsson 5	Melian 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 -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 partial grad
☐ 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	Guid	olina	0 6
Scoring	Guiu		2

Fight (Round no.): Z Room:	6	_ Stage: _	$\frac{\mathcal{S}}{}$ Problem no.: $\underline{\mathcal{S}}$	5
Juror: D. Keller	Signatu	re: / d.	Willer	

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to 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.: Oredon 5	Opp.: China 5	Rev.: 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed 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 d after IOC feedback and approved by EC on 2011-11-03		



	0			0
SCO	rina	Guid	PI	INPS
		UUIU		

Fight (Round no.): _	3 Room:	Stage	::_3_	Problem no.: _	15
Juror: Dina	Stadi	Signature:	1	Rooling	·

• 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.: Swar 5	Opp: Jiahong 5	Rev.: Thingo 5
Sweden	China	Brazil
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
(18)		136 / 1/3
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
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the
	the report	reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed 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	Final Grade: Reviewer 6
3. availaber	Revised	after IOC feedback and approved by EC on 2011-11-03



8	0	0 1	10
SCO	rina	Guide	PIINPS
		OUIUC	

Fight (Round no.): 4 Room:	Stag	ge: # Problem no.:	15.
Juror: PANOSOVA' DAGMAR	Signature:	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.

		11 22 1
Rep.: Sweden 5	Opp.: China 5	Rev.: Staril 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	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 +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
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		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
Zonanation to the discussion	10	1/2
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



		0 1	N O
SCO	rina	Guide	lines
	"IIIII	Calac	

ight (Round no.): 3	Room: #6	_ Stage:\	_ Prøblem no.:	15 Grains brush
uror: Apichart	Signatu	re:	n 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 shortco	mings if there were none to find.
Rep.: Sweden 5	Opp.: China 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	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
 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	2	archive your partial great
☐ 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	R O
COVIDA		linoc
Scoring	Guidel	

Fight (R	Round no.): _	3	Room:	6	Stage:	_3	_ Problem no.:	15
luror:	PENO	PAN		Signatui	re:	7. Pe	ngpan	

• 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 5	Opp.: CN 5	Rev.: 812 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	Procentation +1	Presentation +1
r rescritation 21	Presentation 11	Tresentation 11
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
 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 size
☐ 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



	0 1	1	0
Scoring	GIIIO	P	lines
Jedinig	UNIN		

Fight (Round no.):	Room: 6 s	tage:	Problem no.:	15
Juror: REGNER	Signature:	Neg	w	

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

An opposition should show that:

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

- 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 shortco	mings if there were none to find.
Rep.: Mederi 5	Opp.: Oine Jachna 4: 5	Rev.: Broth 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grades
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



1

Round: ______ Room: ______ Fight Assistants:______

		Stage 1			Stage 2			Stage 3			Stage 4	
Team Juror	China Rep		Sweden Rev	Brazil Rep	Sheden Opp	China Rev	Sweden Rep	China Opp	Brazil Rev	Rep	Орр	Rev
Daniel Keller	4	5	5	5	5	·b	3	7	Ь			
Dina Izadi	5	Ь	6	5	Ь	5	4	7	6			
Dagmar Panosova	5	b	5	7	7	Ъ.	4	6	4			
Apichart Pattanapokrala	7	8	ь	7	6	7	5	7	0			
Teparksorn pengpan	7.	Ь	7	8	7	8	6	7	Ь			
Ulrike Regner	Ь	Ь	5	8	7	b	4	8	8			
Acting Team Member	2 henyan Gong	Thiagon Ross-White Be-	Liiv	Thiago Bergamaschi	Ivar Eriksson.	Kehan Lu.	Tyar Erikan	Jiaho				
Rejected Problems												
Accepted Problem		9			b			15				

Signature Fight Assistant: Suntage Double-checked with Scoring Guidelines by second Fight Assistant (signature): Jinlara

Scoring Guidelines

ight (Round no.): _	3	Room:	7	Stage:	1	Problem no.:	12
uror: Rua M	Aotes		Signatu		/	m	

A report should include:

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

☐ Slides, on-site experiments, audio,

References, proper citations of

ideas and input of others

☐ Contribution to the discussion

video, as appropriate

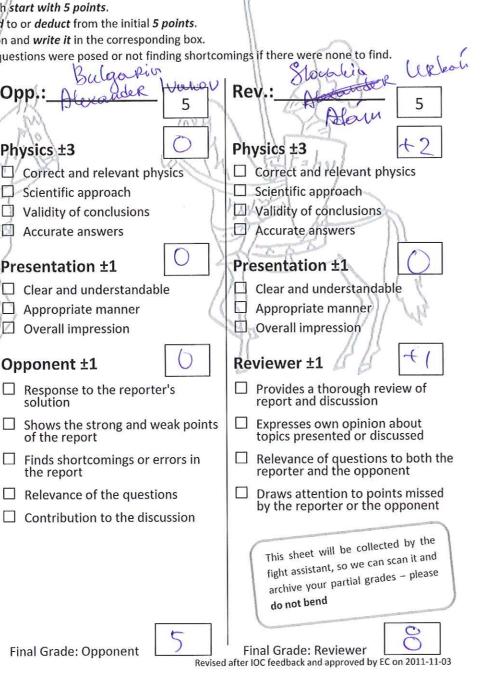
☐ Novelty of the report

Final Grade: Reporter

• 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. Bulgario uder 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 Opponent ±1 Reviewer ±1 Reporter ±1 Provides a thorough review of Response to the reporter's ☐ Quality of experimental report and discussion technique(s) solution Expresses own opinion about topics presented or discussed ☐ Shows the strong and weak points ☐ Structure of the report ☐ Explanation of formulae and Finds shortcomings or errors in reporter and the opponent the report Appropriate models, conformity of dimensions ☐ Relevance of the questions



		0 1	10
SCO	ring	Guide	olinoc
	IIIII	Udida	

ight (Round no.):	3	_Room: _	7	_ Sta	ge: _	1	Problem no.:	12	
uror: CHAIWOO.	Τ		Signatu	re:	20	त्या			

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.: Ukraine 5	Opp.: Bulgaria Alexandor 5	Rev.: Slovakia 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 grand
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



	Fight (Round no.): Room:	7 Stage: Problem no.:
Scoring Guideline	es Juror: M. H. Kwon	
application of appropriate mathematics • reas	theories and principles of the problem • an exponsible experimental technique to gather and receimental findings to draw suitable conclusions ble manner	ord data (or demonstrate the phenomena if
	erstanding of the presented concepts, theories and concepts onent critiqued the experimental technique used and the condenses of the report	
important aspects (especially the controversia	The summary of the performances the reporter are summary of the performances the reporter are summary of the reviewer's personal opinion was in the trivial and demonstrated, where possible, the revoy the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each section 	3 /	
Rep.: Helnyk 5	Opp.: Axandi 5	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	Opponent ±1	Reviewer ±1 6
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



Scoring Guidelin	OC O	Froblem no.: 12 Signature: Rank Rull
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
	erstanding of the presented concepts, theories ar onent critiqued the experimental technique used ngths and weaknesses of the report	
A review should show that:		
important aspects (especially the controversia	ve summary of the performances the reporter and ones) • the reviewer's personal opinion was in a strivial and demonstrated, where possible, the revelop the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 	17	
Rep.: UA 5	Opp.: Bulgarta 5	Rev.: Slowalia 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	Opponent ±1	Reviewer ±1 6 4
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
 Explanation of formulae and symbols 	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both 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 grades
☐ 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

	Fight (Round no.): Room:	
Scoring Guideline	Juror: Mine Frank	Signature: Ming Feng.
3	Juror: //// / fell	signature:
application of appropriate mathematics • reason	theories and principles of the problem • an exponable experimental technique to gather and recrimental findings to draw suitable conclusions the manner	cord data (or demonstrate the phenomena if
	rstanding of the presented concepts, theories ar nent critiqued the experimental technique used gths and weaknesses of the report	
A review should show that:		
important aspects (especially the controversial	e summary of the performances the reporter are ones) • the reviewer's personal opinion was in a rivial and demonstrated, where possible, the rev y the reporter and the opponent	evidence (not just superficial observations) •
	nsists of a partial grade for <i>physics, present</i>	ation and for their specific role.
The reporter, opponent and reviewer each Consider the following suggestions to ad-	11	
 Consider the following suggestions to ad Select each partial grade from each section 		1
	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Ukraine 5	Opp.: Bulgaria 5	Rev.: Slovakia 5
Physics ±3	Physics ±3	Physics ±3
Titysics 25		Correct and relevant physics
☐ Correct and relevant physics☐ Scientific approach	☐ Correct and relevant physics ☐ Scientific approach	Scientific approach
☐ Validity of conclusions	Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
	7	2/5000
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 g.
☐ 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.): 3 Room: 7 Stage: Problem no.: _______
uror: Givenings Signature: 12 Venuings.

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.: Ukraine 5	Opp.: Bulgaria 5	Rev.: Slovakia 5
Melnyk Eugene	Alexander Ivanou	
Physics ±3	Physics ±3 + 12	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	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
 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 g.
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



£	3 7 2
	Fight (Round no.): Room: Stage: Problem no.:
Scoring Guidelines	Juror: Ryn MARTENEN 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.

- Dan't number missing (answers' when no	 Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 					
_ //	2					
Bulgario	anni Slovalia	Rev.: glandilita -				
Rep.:	Opp.:	1/3000 5				
Mitwo	Cospate TOVE	1) Cerows				
(=)	Physics +3	Physics +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				
		Procentation #1				
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				
☐ Quality of experimental technique(s)☐ Structure	solution Shows the strong and weak points	report and discussion Expresses own opinion about				
technique(s) Structure	solution Shows the strong and weak points of the report	report and discussion Expresses own opinion about topics presented or discussed				
technique(s)	solution Shows the strong and weak points of the report Finds shortcomings or errors in	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the				
technique(s) Structure Explanation of formulae and symbols	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the				
technique(s) Structure Explanation of formulae and symbols	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio,	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	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				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	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				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others Novelty of the report	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	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				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	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				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others Novelty of the report	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	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				



Scol	rina	Guid	olii	nec
SCUI		Guiu		162

ight (F	Round no.): _	3	_ Room: _	7	_ Stag	e:	2	Problem no.: _	6	
uror:	CHAIN	DOT		Signatu	re:	40	7/2			

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

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the 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.: Slavakia 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
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 grade
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 7



	Fight (Round no.): Room: _	Stage: Problem no.:
Scoring Guideline	Juror: M. H. Kwon	Signature:,
A report should include: • a presentation of the appropriate concepts, the application of appropriate mathematics • reason appropriate) • linking of theoretical and experise complex ideas in an effective and understandable.	nable experimental technique to gather and rec imental findings to draw suitable conclusions	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's unders appropriate mathematics presented • the oppon opponent appreciated and highlighted the streng	ent <i>critiqued</i> the <i>experimental technique</i> used	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 reviewer succeeded in giving an objective important aspects (especially the controversial of such personal opinions were informative, non-triprinciples and appropriate mathematics used by	ones) • the reviewer's <i>personal opinion</i> was in e ivial and demonstrated, where possible, the rev	evidence (not just superficial observations) •
 The reporter, opponent and reviewer each Consider the following suggestions to add Select each partial grade from each section Don't punish missing 'answers' when no queen 	to or deduct from the initial 5 points.	
☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner ☐ Overall impression	Appropriate manner Overall impression	Appropriate manner Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in the report	Relevance of questions to both t 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 8
☐ Contribution to the discussion		do not bend

Final Grade: Opponent

Final Grade: Reporter

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

_		_ 0 8	8 0
Cco	KINA	Guide	linac
コレロ	THE THE	GUIUE	IIIIIES

ight (Round no.): #3	_ Room:	7	_ Stage: _	2	_ Problem no.: _	6	
uror: R. Reidely	Si	ignatu	re:	ani	Ridy		

• 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 shortco	mings if there were none to find.
Rep.: 35	Opp.: 5	Rev.:
Physics ±3	Physics ±3	Physics ±3 -0.5
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ± 1 0.5	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 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 partial Brown
☐ 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



1		
	Fight (Round no.): Room:	Stage: Problem no.:
Scoring Guidelin	es Juror: Ming Feng	Signature: Ming Fee
	7	
application of appropriate mathematics • rea	theories and principles of the problem • an exposonable experimental technique to gather and reconstructed findings to draw suitable conclusions while manner	cord data (or demonstrate the phenomena if
	erstanding of the presented concepts, theories are conent critiqued the experimental technique used angths and weaknesses of the report	
A review should show that:		
5 15 15	ve summary of the performances the reporter and ones) • the reviewer's personal opinion was in a	5/5
	-trivial and demonstrated, where possible, the rev	
	4	2 con
 The grade for each of the three teams of The reporter, opponent and reviewer each 	onsists of a partial grade for <i>physics, presenta</i>	ntion and for their specific role.
	dd to or deduct from the initial 5 points.	
 Select each partial grade from each sect 	ion and write it in the corresponding box.	
 Don't punish missing 'answers' when no 	questions were posed or not finding shortco	mings if there were none to find.
Rep.: Bulgaria 5	Opp.: Sbrakia 5	Rev.: Okraine 5
Physics ±3	Physics ±3	Physics ±3 +aJ
Titysics 25	111/3103 23	The state of the s
☐ 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
		WEED.
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 8 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and	of the report	topics presented or discussed
symbols Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	and reported of the opposition

Final Grade: Opponent

References, proper citations of ideas and input of others

☐ Contribution to the discussion

☐ Novelty of the report

Final Grade: Reporter

This sheet will be collected by the

fight assistant, so we can scan it and archive your partial grades – please

do not bend

Final Grade: Reviewer

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

Challenge problem 7,	rejected	
6	accepted.	1 1
		7 Stage: 2 Problem no.: 6
Scoring Guideline	es Juror: G. Jenning's	
A report should include:	_	
 a presentation of the appropriate concepts, application of appropriate mathematics • reas 	theories and principles of the problem • an exp conable experimental technique to gather and rec erimental findings to draw suitable conclusions ble manner	ord data (or demonstrate the phenomena if
An opposition should show that:		
 the opponent challenged the reporter's under appropriate mathematics presented • the oppoponent appreciated and highlighted the stream 	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:	2004 NOOL	
	ve summary of the performances the reporter an	ad opponent • the reviewer appreciated the
important aspects (especially the controversia	I ones) • the reviewer's personal opinion was in e	evidence (not just superficial observations) •
such personal opinions were informative, non- principles and appropriate mathematics used	trivial and demonstrated, where possible, the rev	iewer's understanding of concepts, theories,
principles and appropriate mathematics used	of the reporter and the opposition	1 som
	onsists of a partial grade for physics, presenta	tion and for their specific role.
The reporter, opponent and reviewer early		
 Consider the following suggestions to ac Select each partial grade from each sect 	ion and write it in the corresponding box.	1
 Don't punish missing 'answers' when no 	questions were posed or not finding shortcom	mings if there were none to find.
		11 (12)
Rep.: Bulgaria	Opp.: Slovakia	Rev.: Ukraine
Mitico Benkou 5	Opp.: Slovakia 5 Moroslav Pasparek 5	Nikita Rogovoy. 5
(3)	1 Dagices tespert	11/23
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	NERO LA
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
- (1)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Reporter ±1	Opponent ±1	Reviewer ±1 4 4 2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
O Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed

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 <i>challenged</i> the <i>reporter's</i> unde appropriate mathematics presented • the opponent appreciated and highlighted the strength	rstanding of the presented concepts, theories and onent critiqued the experimental technique used a gths 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 controversial	e summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the review the reporter and the opponent	vidence (not just superficial observations) •		
The <i>reporter</i> , <i>opponent</i> and <i>reviewer</i> ea Consider the following <i>suggestions</i> to ac Select each partial grade from each secti	d to or deduct from the initial 5 points.			
MITICO BENKOU 5	Opp: Slovakia 5 moroslav Gasparek 5	Rev.: Ukraine 5 Nikita Rogovoy. 5		
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner Overall impression Reporter ±1	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner Overall impression Opponent ±1	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers Presentation ±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 symbols Appropriate models, conformity 	 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 		
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 Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03		

Scoring	Guidel	lines
---------	--------	-------

Fight (Round no.):	3	Room:	7	_Stage:	3	_ Problem no.:	14
Juror: lega ha	rrec	LENW!	Signatu	re:/		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

- 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.

	ch start with 5 points.					
 Consider the following suggestions to ac 						
Select each partial grade from each section and write it in the corresponding box.						
1 11	questions were posed or not finding shortcom					
Socialion	Clipaine	Bulgario				
Rep.: Contalia	Opp.: Eugen 5	Rev.: Alexander 5				
Pozichow 5	Melayle inve	11 20				
(Company)	Mal reing	Manov (28)				
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)		By a contains the last of the				
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				
1111						
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				
☐ Quality of experimental technique(s)☐ Structure	solution Shows the strong and weak points	report and discussion Expresses own opinion about				
technique(s) Structure	solution Shows the strong and weak points of the report	report and discussion Expresses own opinion about topics presented or discussed				
technique(s)	solution Shows the strong and weak points of the report Finds shortcomings or errors in	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent				
technique(s) Structure Explanation of formulae and	solution Shows the strong and weak points of the report Finds shortcomings or errors in	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio,	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	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				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others Novelty of the report	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	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				
technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others Novelty of the report	solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	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				



	0	• • 1	10
SCO	rina		elines
		UUIU	

ight (Round no.): _	3	_ Room: _	St	age:	_ Problem no.:	14	
uror: CHAINO	OT	9	Signature:	Fears			

• 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.: Slovation 5	Opp.: Ularnin 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
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 give
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer dafter IOC feedback and approved by EC on 2011-11-03



	2	n 2 116
Cooring Guidalin	Fight (Round no.): Room: _	Stage: Stage: Problem no.: 19
Scoring Guideline	Juror: M. H. Kwan	Signature:
A report should include:		
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	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 strength.	erstanding of the presented concepts, theories an enent critiqued the experimental technique used a eights 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 controversian	te summary of the performances the reporter and ones) • the reviewer's personal opinion was in extrivial and demonstrated, where possible, the revoy the reporter and the opponent	vidence (not just superficial observations) •
The grade for each of the three teams co	nsists of a partial grade for <i>physics</i> , <i>presenta</i>	tion and for their specific role.
• The reporter, opponent and reviewer ea	ch start with 5 points.	
Consider the following suggestions to accept sections	Id to or deduct from the initial 5 points. on and write it in the corresponding box.	
	questions were posed or not finding shortcor	nings if there were none to find.
		11 /2 /
Rep.: 5	Opp.:5	Rev.: 5
	M	
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
	5	Distributed 1
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	☐ Clear and understandable ☐ Appropriate manner
☐ Appropriate manner ☐ Overall impression	Appropriate manner Overall impression	Overall impression
Overall impression	Overall impression	To vertall impression
Reporter ±1 +	Opponent ±1	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
 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 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



		0 1	A o
SCO	rina	Guide	Plines

ght (Round no.): #3	Room:	7	Stage:	3	_ Problem no.:	14	٠
ror: R. Revolle		Signature	e: P	Rei	dele	,	

• 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.: Slowalia 5	Opp.: 4	Rev.: 36 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				
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion				
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed				
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent				
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed				
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent				
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and				
☐ Novelty of the report		archive your partial grow				
☐ Contribution to the discussion		do not bend				
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer				



Scor	ina	Gui	dol	line
3001	IIII	UUI	UCI	

Fight (Round no.): Ro	oom: S	Stage: 3	Problem no.: 14
Juror:	ing Feng	Signature:	:M	ing Keng

• 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	minigs if there were none to find.
Rep.: Slovakia 5	Opp.: Veraine 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
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 +0.	Opponent ±1	Reviewer ±1
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both 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 grown
☐ 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



Challenge problem 14 accepted.

	6007			
6		Guid	-	1:000
	nrinn		PI	unps
		UMIM		

2	7	- 3	3%	
Fight (Round no.):	Room:	Stage:	_ Problem no.: _	
Juror: G. Jen	nings Signat	ture:	C. Denni	175
Jaion	1 0.8.1			

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

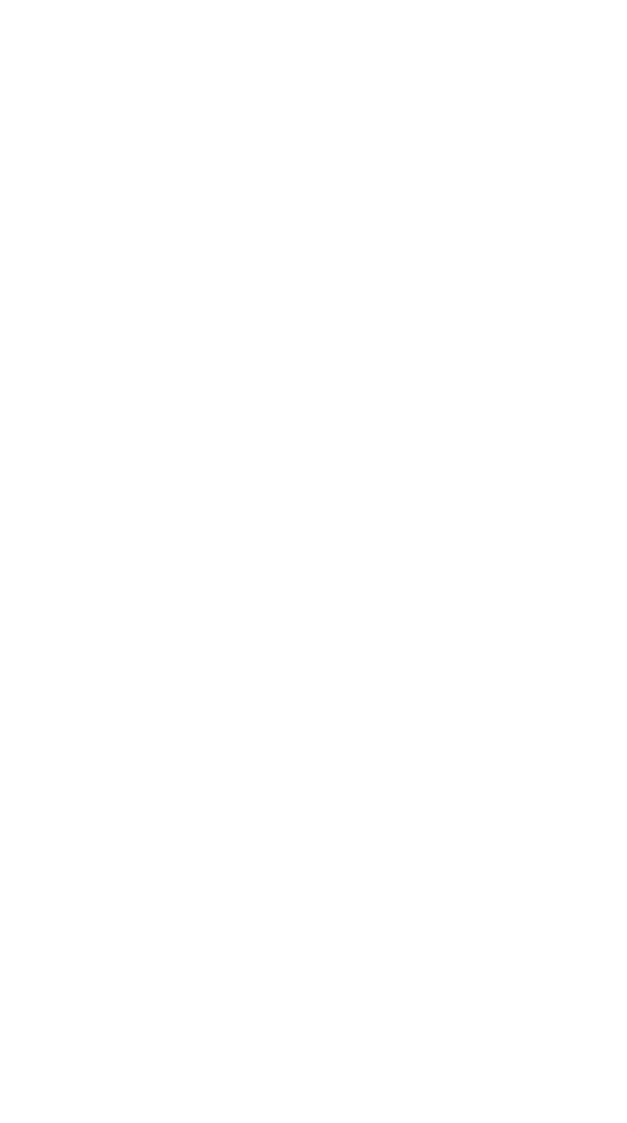
An opposition should show that:

• 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

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 	 Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 						
Rep.: Slovakia	Oppl: Ukraine	Rev.: Bulgaria					
atalia Ruzickova 5	Melnyk Eugene 5	Alexander Ivanov 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 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 					
	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 	O 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					



Round: _______ Room: _______ Fight Assistants: ______ Kanyana _____ Supernok.

		Stage 1			Stage 2			Stage 3			Stage 4	
Team	Ukraine	Bulgaria	Slovakia	Bulgaria	Slovakia	Ukraine	Slovakia	Ukraine	Bulgaria			
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Ilya Martchenko	6	5	8	6	8	b	7	6	5			
Chaiwoot Boonyasiriwat	6	7	8	7	7	7	6	5	7			
Myeung Hoi Kwon	4	7	6	6	Ь	6	7	5	7			
Roiner Reichle	4	5	7	6	6	4	Ь	3	5			
Ming Feng	5	6	6	Ь	6	6	6	5	5			
Gavin Jennings	4	6	7	7	7	6	7	6	6			
Acting Team Member	Yerhen Melnyk	Aleksander Iranov	Adam Urban	Mitko Benkov	Miroslav Gasparek	Mykyta Rohovyi	Natalia Ruzickova	Yerhen Melnyk	Aleksandar Evanov			
Rejected Problems	3. Artif	ical Musch	9	7. Shad	ed Pole				·			
Accepted Problem	12. Thick	Lens		b. Magnu	s Gliber		14. Circle	e of Light				

	0 1	1 110
Scoring	(allo	Pline
Scolling		

ight (Round no.): _	3	Room:	8	Stage:	1	Problem no.:	17
uror: Kim Re	- 2ima		Signatu		d	RR.	

• 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.

 Select each partial grade from each secul Don't punish missing 'answers' when no 	questions were posed or not finding shortcor	mings if there were none to find.
Rep.: Taiwan 5	Opp.: Sortanted 5	Rev.: Migecia 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 +0,5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in 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 give
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



		N 0
Scoring	Guide	lines

ight (Round no.):	Room:	Stage:	Problem no.:	17
uror: frust ka	lasur Sign	ature:	mys	

• 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 shorted	omings it there were none to find.
Rep.: 5	Opp.:5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed 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	Final Grade: Reviewer



	Fight (Round no.): Room:	Stage: Problem no.:/
Scoring Guideling	00	Signature:
application of appropriate mathematics • reas	theories and principles of the problem • an exponable experimental technique to gather and receimental findings to draw suitable conclusions ble manner	ord data (or demonstrate the phenomena if
	erstanding of the presented concepts, theories an onent critiqued the experimental technique used a 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 revoy the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 	3.7	
Rep.: 5	Opp.:	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	Opponent ±1 Response to the reporter's	Reviewer ±1
technique(s) Structure	solution Shows the strong and weak points	report and discussion Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent 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

	0		0 11	N o
Sco	ring	GU	ide	lines
990	9			

ight (Round no.): _	3	_ Room: _	8	_ Stage:	Problem	no.: _	/
uror: J. BAL	CO	MBP	Signatu	ire: 🎵	51	5-8	

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

An opposition should show that:

• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* and *principles* • the opponent understood the *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.: TAWAN 5	Opp.: 50172. 5	Rev.: NIGERIA 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
■ Validity of conclusions	Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 +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 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
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	0	archive your partial g.
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



	Fight (Round no.): Room:	Stage: / Problem no.: / 1
Scoring Guideline	S YE VED	Signature:
A report should include: • a presentation of the appropriate concepts, the application of appropriate mathematics • reason appropriate) • linking of theoretical and experise complex ideas in an effective and understandable	able experimental technique to gather and rec mental findings to draw suitable conclusions	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's understappropriate mathematics presented • the opponed opponent appreciated and highlighted the strengt	ent critiqued the experimental technique used	12 (C)
A review should show that: • the reviewer succeeded in giving an objective simportant aspects (especially the controversial of such personal opinions were informative, non-trive principles and appropriate mathematics used by the same should be succeeded.	nes) • the reviewer's <i>personal opinion</i> was in e vial and demonstrated, where possible, the rev	evidence (not just superficial observations) •
 The grade for each of the three teams consider the following suggestions to add Select each partial grade from each section Don't punish missing 'answers' when no que Tawan Rep.:	start with 5 points. to or deduct from the initial 5 points. and write it in the corresponding box.	
☐ Correct and relevant physics ☐	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 Clear and understandable	Presentation ±1 Clear and understandable
	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
	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
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		fight assistant, so we can see archive your partial grades – please do not bend
☐ Contribution to the discussion		do not sens
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer Jafter IOC feedback and approved by EC on 2011-11-03

	0 1	I Ro
SCAVING		alina
Scoring	I GUIU	CIIIICS
	, –	0111100

Fight (Round no.):	Room:	Stage: 1 Problem no.: 17
Juror: Zakhar	Maizelis	Signature: 04

• 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.: January 5	Opp.: Sustantand 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 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	Relevance of guestions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
 References, proper citations of ideas and input of others 		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial great
☐ 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



CCOVIDA C	inidalin	000
Scoring G	uluelli	163

ight (Round no.): _	3	_Room:	8	_ Stage: _	2 Problem no.:	14
uror: Kim F	reiw	am	Signatu	re:	ASS	

• 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.

 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 or not finding shortcoi	mings if there were none to find.		
Rep.: Switerland 5	Opp.: Kenya 5	Rev.: Taiwau 5		
Physics ±3	Physics ±3 0,5	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 +0,		
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner		
Overall impression	Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1 8 + 6,5		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
Explanation of formulae and symbols	☐ Finds shortcomings or errors in 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 grow		
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

	2		0		2		14	
ight (Round no.): _	7	Room: _	8	_Stage: _	7	Problem no.:		
uror: Da Prus	+ K	alasum	Signatu	re: on	01	why		

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	Орр.:5	Rev.:5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
 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 group
☐ 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

	Fight (Round no.):	Stage: Problem no.: 14
Scoring Guideline	os at Cont	Signature:
		C Ju
application of appropriate mathematics • reas	theories and principles of the problem • an exp onable experimental technique to gather and rec erimental findings to draw suitable conclusions ble manner	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 and concepts are concepts and concep	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:		d annount a the reviewer appreciated the
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 review the reporter and the opponent	vidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 		
Rep.: 5	Opp:: 5	Rev.: 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	Clear and understandable Appropriate manner
☐ Appropriate manner / /	Appropriate manner Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 & Fo.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 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 Guidelines

Fight (Round no.): 3 Room: 8 Stage: 2 Problem no.: 14

Juror: J.B. Stage: 4 Problem no.: 14

A report should include:

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

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the 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.: SWITZ 5	Opp.: NIGERIA 5	Rev.: TAIWAN 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
Scientific approach	Scientific approach	Scientific approach
☐ Validity of conclusions	Validity of conclusions	Validity of conclusions
→ Accurate answers	Accurate answers	Accurate answers
Presentation ±1 #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 66 +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
Stides, 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 after IOC feedback and approved by EC on 2011-11-03



	Fight (Round no.): 3 Room:	8 Stage: Z Problem no.: 14				
Scoring Guideline	00 1/ 1/40	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						
	erstanding of the presented concepts, theories an conent critiqued the experimental technique used a congths and weaknesses of the report					
A review should show that:						
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 revoy the reporter and the opponent	evidence (not just superficial observations) •				
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sections 						
Rep.: Liona Hewsbach 5	Opp.: Rebeua Banjo 5	Rev.: chang Yin-chieh 5				
Physics ±3	Physics ±3	Physics ±3				
☐ Correct and relevant physics☐ Scientific approach	☐ Correct and relevant physics☐ Scientific approach	☐ Correct and relevant physics☐ Scientific approach				
☐ Validity of conclusions	☐ 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 4				
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion				
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed				
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent				
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	Draws attention to points missed 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 grow				
\square 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				

		- 01		n o
SCO	rina	Guid	0	linos
3601	HHIG	Guid	CI	

Fight (Round no.):	3	Room:	_8 S	tage:	2	Problem no.: 1/14	
Juror: Zakhar	Maire	lis	Signature:	1	36	,	

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

A report should include:

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

An opposition should show that:

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

A review should show that:

- The 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.: Switzer land 5	Opp.: Nisona 5	Rev.: Jaman 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	Presentation ±1	1.
Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 6 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	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	the report Relevance of the guestions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial ground
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 7



a			0 0
SCO	rina	GILIO	lelines
	IIIII	UUIU	

Fight (Round no.):	3	Room:	8	Stage:	3	Problem no.:	16
11 1	No.	00.00	Signatur		(L)	R	

• 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 shortco	omings if there were none to find.
Rep.: Nigena 5	Opp.: Taiwan 5	Rev.: Quiterland 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 0	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	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 grad
☐ 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
---------	------------

7	& &	3		16
ght (Round no.):	Room: 0	Stage:	Problem no.:)
iror: Pract K	0 000	ture: mal	mlord	
iror: Thuel	ala surmy Signa	iture:	0144174	

• 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 shortco	mings if there were none to find.
Rep.: 5	Opp.:5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	.□ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
 Quality of experimental technique(s) 	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	Draws attention to points missed 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 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



120 (B)		Fight (Round no.):	Room:	Stage
Scoring (Guidelines	Juror: 774/	S / Signa	iture:

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.

 Select each partial grade from each section Don't punish missing 'answers' when no 	questions were posed or not finding shortcor	nings if there were none to find.
		The state of
Rep.: 15	Opp.: 74 5	Rev.: 5 5
U 22 - 1	1025	
(=)	Physics +3	Physica 42
Physics ±3	1 III Jacob 25	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
		176 /////
n illia	Onnonent +1	Reviewer ±1 4 4
Reporter ±1	Opponent ±1	
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	Response to the reporter's solution Shows the strong and weak points	Provides a thorough review of report and discussion Expresses own opinion about
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and	Response to the reporter's solution Shows the strong and weak points of the report	☐ Provides a thorough review of report and discussion ☐ Expresses own opinion about topics presented or discussed
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols	Response to the reporter's solution Shows the strong and weak points	Provides a thorough review of report and discussion Expresses own opinion about
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in	 □ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio,	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	 □ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	□ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio,	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	□ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent This sheet will be collected by the
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	 □ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent □ This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and archive your partial grades – please
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate ☐ References, proper citations of ideas and input of others ☐ Novelty of the report 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	□ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate ☐ References, proper citations of ideas and input of others 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	 □ Provides a thorough review of report and discussion □ Expresses own opinion about topics presented or discussed □ Relevance of questions to both the reporter and the opponent □ Draws attention to points missed by the reporter or the opponent □ 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



Sco	rina	Guia	P	ines
300	ııııg	Guid	CI	11163

ght (Round no.):	3	Room:	8	Stage: 3	Problem no.:	16
TRAL		-			61	

• 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.: TAIWAN 5	Rev.: <u>SWITZ</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 Ualidity of conclusions	☐ Scientific approach ☐ Validity of conclusions
Presentation ±1	Accurate answers Presentation ±1 +0.5	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 symbols	☐ Shows the strong and weak points of the report ☐ Finds shortcomings or errors in	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions Slides, on-site experiments, audio,	the report Relevance of the questions Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
video, as appropriate References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please
Novelty of the report Contribution to the discussion	Sinal Guada Onna wat	do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



		0 1	П П О
SCO	rina	GILLA	lelines
		UUIU	

ght (Round no.):	Room: Stage: 7 Problem no.: 6	
Iror: YE. YEO	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

- 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 brade for each of the three teams of	//	
 The reporter, opponent and reviewer ea 		
 Consider the following suggestions to ac 		1
	ion and write it in the corresponding box.	
/! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !	questions were posed or not finding shortco	
Rep.: Andulgancio 5	Opp.: Cheng Yunchieh 5	Rev.: Marc Bitterli 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
		7/208
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 g.
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



	0 1	1 0
Scoring	(SIIIA)	linec
JUDITING	Juluci	

Fight (Round no.):	Room	m: <u>8</u> St	age: 3	_ Problem no.: 13,4,16,
Juror: Zakhar	Maizelis	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

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.: Liferia 5	Opp.: Taiwan 5	Rev.: Substand 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					
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 grow					
☐ Contribution to the discussion		do not bend					
Final Grade: Reporter 5	Final Grade: Opponent Revised	Final Grade: Reviewer dister IOC feedback and approved by EC on 2011-11-03					



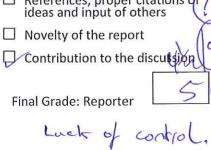
Round: Somethai & Jadsada

Round: Somethai & Jadsada

		Stage 1			Stage 2			Stage 3			Stage 4	
Team	Taiwan	Switzerland	Nigeria	Switzerland	Negeria	Taiwan	Nigeria	Taiwan	Switzerland			
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Kim Freimann (chair)	5	Ь	4	7	6	8	3	6	7			
Prvet kalasuwan	6	7	7	6	4	6	3	6	7			
Qian Sun	b	5	6	4	5	6	4	6	A			
John Balcombe	7	6	5	6	4	6	3	6	6			
Ye Yeo	4	6	5	6	6	8	3	8	J			
Zahnay Maizalis	4	6	6.	4	7	7	5	7	6			
Acting Team Member	Neng-Tai Chiv.	Pinyllis Barth	Rebecca Banjo	Lioba Heimbach	Rebecca Banjo	Vin- Chieh Cheng.	Abdulsamad Abdulsalam	Mu-Chien Cheng	Mare Bittershi			
Rejected Problems				(1)			(13) (4					
Accepted Problem	(19)		(14)			(16)					

Signature Fight Assistant: Sancha Double-checked with Scoring Guidelines by second Fight Assistant (signature): Jadsada

	Fight (Round no.): 3 Room:	Stage: Problem no.:
Scoring Guidelin	es Juror: ALAN ALLINS	Signature: Al All
application of appropriate mathematics • rea	theories and principles of the problem • an exposonable experimental technique to gather and reconstructed findings to draw suitable conclusions while manner	cord data (or demonstrate the phenomena if
	erstanding of the presented concepts, theories an conent critiqued the experimental technique used ngths and weaknesses of the report	
important aspects (especially the controversion	ve summary of the performances the reporter are all ones) • the reviewer's personal opinion was in entrivial and demonstrated, where possible, the revelop the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ex Consider the following suggestions to a 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	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	☐ Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	☐ Relevance of questions to both the
Appropriate models, conformity 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 ?		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 discutsion	- Color	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



	Fight (Round no.): 3 Room:	Stage: Problem no.:
Scoring Guideling	es Juror: Warasan Kindhik	Sterioture: Am M
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	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
important aspects (especially the controversia	The summary of the performances the reporter and 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) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 	11	
Rep.: Belavus 5	Opp.: Macao 5	Rev.: Russia 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 6 +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both th
Appropriate models, conformity 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 com- archive your partial grades – please

Final Grade: Opponent

do not bend

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

Final Grade: Reporter

☐ Contribution to the discussion

	~ 0 I	80
Scoring	Guid	pline
Scolling	UUIU	

ight (Round no.): _	3	Room:	Stage:	Problem no.: _	17
uror: Chuanyon	ng 1	Sign	nature:	hop O	•

• 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.

) ~ //		. Il da)
Rep.:	Opp.:5	Rev.: 5
5	5	
Physics +2	Mol	Physics +3
Physics ±3	Physics ±3	Filysics 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
11	Presentation +1	NEGE 3
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
		36 88
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	Finds shortcomings or errors in	Relevance of questions to both the
	the report	reporter and the opponent
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio,	☐ Contribution to the discussion	by the reporter or the opponent
video, as appropriate		the 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
☐ 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 7	Final Grade: Reviewer



		<u></u>
Scoring Guideline	Fight (Round no.): 3 Roo	m: 9 Stage: 1 Problem no.: 13
application of appropriate mathematics • reas	onable experimental technique to gather and erimental findings to draw suitable conclusi	explanation of the observed phenomena • an a record data (or demonstrate the phenomena if ions • an attempt to communicate difficult or
An opposition should show that: • the opponent challenged the reporter's under appropriate mathematics presented • the opponent appreciated and highlighted the street	onent critiqued the experimental technique us	s and <i>principles</i> • the opponent understood the sed and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controversia	I 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,
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 		tcomings if there were none to find.
5	Mo	Physics ±3
Physics ±3	Fillysics ±5	II VERTICALIA
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach ☐ Validity of conclusions
Validity of conclusions	Validity of conclusions Accurate answers	Accurate answers
Presentation ±1	Accurate answers 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

Response to the reporter's solution

Shows the strong and weak points of the report

Finds shortcomings or errors in

☐ Relevance of the questions

Final Grade: Opponent

☐ Contribution to the discussion

Opponent ±1

the report

Reviewer ±1

Provides a thorough review of report and discussion

Expresses own opinion about topics presented or discussed

Relevance of questions to both the reporter and the opponent

Draws attention to points missed by the reporter or the opponent

This sheet will be collected by the

fight assistant, so we can scan it and archive your partial grades - please

do not bend

Final Grade: Reviewer

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

-0,5

Reporter ±1

☐ Structure

symbols

Quality of experimental technique(s)

Explanation of formulae and

Appropriate models, conformity of dimensions

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

References, proper citations of ideas and input of others

☐ Contribution to the discussion

☐ Novelty of the report

Final Grade: Reporter

	Fight (Round no.): 3 Room:	9 Stage: 1 Problem no.: 17
Scoring Guideline	25 Juror: Tan Joy	X2:
70		
application of appropriate mathematics • reason	theories and principles of the problem • an exponable experimental technique to gather and receimental findings to draw suitable conclusions alle manner	ord data (or demonstrate the phenomena if
	rstanding of the presented concepts, theories an ment critiqued the experimental technique used a gths and weaknesses of the report	
important aspects (especially the controversial	e summary of the performances the reporter an ones) • the reviewer's personal opinion was in e crivial and demonstrated, where possible, the rev by the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer each Consider the following suggestions to ad Select each partial grade from each section Don't punish missing 'answers' when no open and the section 	d to or deduct from the initial 5 points.	nings if there were none to find.
Rep.: Anastasiya 5	Opp.: Louise Ong 5	Rev.: Nilcolar 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	 Provides a thorough review of report and discussion
Structure how meaning our made s if	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and the 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 do not bend
☐ Contribution to the discussion		do not bella

Final Grade: Opponent

Final Grade: Reviewer

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

			0 [10
Scor	ina	Gu	ıde	lines

ight (Ro	ound no.): _	3	Room:	9	_ Stage:	.1	Problem no.: _	17	
ıror:	MON	SIT		Signatu	ıra.	M.	To the	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 shortco	mings if there were none to find.
Rep.: BELARUS 5	Opp.: MACAU 5	Rev.: RUSS (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 -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 ±11	Opponent ±1	Reviewer ±1
Quality of experimental technique(s) = a constant	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grades
☐ Contribution to the discussion		do not bend
no units.		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03



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

A report should include:

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

An opposition should show that:

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

A review should show that:

- The 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 shortco	
MACAO	RUSSIA	BELARUS
Rep.: Chon How In 5	Opp.: Vitali M 5	Rev.: ANTON R 5
(1 7 3 1 3 1	3	1 1 8
	Mol	Physics +3
Rhysics ±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
		WEED.
Presentation ±1	Presentation ±1 /2	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1	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
technique(s)	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 partial grad
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Fight (Round no.): 3 Room: 9 Stage: 2 Problem no.: 7.

Juror: Wassen Kindhikung Signature: 1/2

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to 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 shortco	mings if there were none to find.				
- Macgo Reject #3)	10,9,8,12,	N Belavus				
Rep.: 5	Opp.: Russia 5	Rev. : 5				
Physics ±3	Physics ±3	Physics ±3				
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics				
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach				
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions				
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers				
Presentation ±1	Presentation ±1	Presentation ±1				
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable				
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner				
Overall impression	Overall impression	Overall impression				
Reporter ±1	Opponent ±1 O. 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,	☐ 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 fight assistant, so we can scan it and				
☐ Novelty of the report		archive your partial Brown				
☐ 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				



•	0	N 0
Scoring		leline

ight (Round no.): _	3	_ Room:	-	Stage: _	2	Problem no.:	7
iror: Chian (gra	4	Signatur	e: <i>(</i>	h	sel	

• 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.: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
		NO DE LINE
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 +D.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols 	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
 Appropriate models, conformity of dimensions 	the report Relevance of the questions	Draws attention to points missed 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 d after IOC feedback and approved by EC on 2011-11-03



Fight (Round no.): 3 Room: 9 Stage: 2 Problem no.: 7

Juror: Golcea Noeudu Signature: 4

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

A report should include:

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

An opposition should show that:

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

A review should show that:

- The 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
		WEAR.
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
		176 // //
Reporter ±1 +9	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
	Great State of the	by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	. L. tha
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grades
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



	0		0 _	n o
Scor	'ing	GUI	iaei	unes

Fight (Round no.):	Room:	9	Stage:	2	Problem no.:	7
Juror: Tan Jy		Signatur	re:	Fa)	

• 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 missing answers when no	questions were posed of not infamily shorted	Things it there were there to that
Rep.: Chan Han In 5	Opp.: Vitalii matunin 5	Rev.: Mortey 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 ☐ stell	☐ Appropriate manner	☐ Appropriate manner
Overall impression to follow	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 grown
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent Revise	Final Grade: Reviewer dafter IOC feedback and approved by EC on 2011-11-03



ight (Round no.)	3	Room:	9	Stage:	2	Problem r	10.:
iror: MO	NSIT		Signatur	. M	- T	_#	

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.: MACAU 5	Opp.: 208814. 5	Rev.: BELAPUS 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
1111 -78		
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 grudes
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6



30		
Scoring Guideline	Fight (Round no.): 3 Room:	Stage: Problem no.:
Scoring Galdenne.	Juror: ALAN ALLINSON	Signature: Hu All
A report should include: • a presentation of the appropriate concepts, the application of appropriate mathematics • reasons appropriate) • linking of theoretical and experise complex ideas in an effective and understandable	able experimental technique to gather and rec mental findings to draw suitable conclusions	ord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's underst appropriate mathematics presented • the oppone opponent appreciated and highlighted the strengt	ent <i>critiqued</i> the <i>experimental technique</i> used a	
A review should show that: • the reviewer succeeded in giving an objective simportant aspects (especially the controversial of such personal opinions were informative, non-trive principles and appropriate mathematics used by the	nes) • the reviewer's <i>personal opinion</i> was in e vial and demonstrated, where possible, the revi	vidence (not just superficial observations) •
 The grade for each of the three teams consider the reporter, opponent and reviewer each Consider the following suggestions to add Select each partial grade from each section Don't punish missing 'answers' when no question Rep.: 	start with 5 points. to or deduct from the initial 5 points. and write it in the corresponding box.	
☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐	Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1	Presentation ±1 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 technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
□ Structure Need more datas	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 at much
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	WAS CLEANER AFTER	This sheet will be collected by the

Caraina Caidalina	Fight (Round no.): 3 Room:	: Stage: Stage: Problem no.:
Scoring Guidelines	Juror: ALAN ALLINSON	Signature: Ala All
A report should include: • a presentation of the appropriate concepts, theories application of appropriate mathematics • reasonable e appropriate) • linking of theoretical and experiments complex ideas in an effective and understandable manner.	experimental technique to gather and real findings to draw suitable conclusion	ecord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's understandin appropriate mathematics presented • the opponent creopponent appreciated and highlighted the strengths an	itiqued the experimental technique used	
A review should show that: • the reviewer succeeded in giving an objective summ important aspects (especially the controversial ones) • such personal opinions were informative, non-trivial arprinciples and appropriate mathematics used by the results.	the reviewer's <i>personal opinion</i> was in nd demonstrated, where possible, the re	evidence (not just superficial observations) •
 The grade for each of the three teams consists of the reporter, opponent and reviewer each start. Consider the following suggestions to add to or Select each partial grade from each section and Don't punish missing 'answers' when no question and the punish missing 'answers' when no question are punished to be put the punished to be purely the punished to be put the punished to be p	t with 5 points. deduct from the initial 5 points. write it in the corresponding box.	
☐ Correct and relevant physics	orrect and relevant physics cientific approach alidity of conclusions ccurate answers lentation ±1 lear and understandable ppropriate manner	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner
□ Overall impression □ O	onent ±1	Overall impression Reviewer ±1
	esponse to the reporter's olution	Provides a thorough review of report and discussion
Explanation of formulae and	hows the strong and weak points f the report Pw V inds shortcomings or errors in	topics presented or discussed Relevance of questions to both the
☐ Appropriate models, conformity	ne report elevance of the questions	reporter and the opponent admuch ☐ Draws attention to points missed
☐ Slides, on-site experiments, audio,	ontribution to the discussion	by the reporter or the opponent
☐ References, proper citations of ideas and input of others ☐ Novelty of the report ☐ Contribution to the discussion	WAS CLEMER AFTER OS+DISCUSSION but Dous on o'Ne diffusive systems.	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend
LONG TIME SCALE STENDER STING	J. Grade: Oppopent	Final Grade: Reviewer
Final Grade: Reporter	il Glaue. Obbonent	ed after IOC feedback and approved by EC on 2011-11-03

Scoring	Guidelines

ight (Round no.):	Room:	9 Sta	ige: 3	Problem no.:	8
uror: Worasan	Kundhiksi	gnature:	Mhm	//	

• 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.

• Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. Rep.: WSSIA 5 Opp.: Bolavus 5	5
Rep.: WSS 12 5 Opp.: belavus 5	
5 1004	
	0.5
1 - 1 1/0	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	
Presentation ±1 Presentation ±1 Presentation ±1	0
☐ Clear and understandable ☐ Clear and understandable ☐ Clear and understandable	1
☐ Appropriate manner ☐ Appropriate manner ☐ Appropriate manner	Py.
□ Overall impression □ Overall impression	E.
Reporter ±1 Opponent ±1 -6.5 Reviewer ±1 +0.	5
☐ Quality of experimental technique(s) ☐ Response to the reporter's solution ☐ Provides a thorough review of report and discussion	of
☐ Structure ☐ Shows the strong and weak points of the report ☐ Expresses own opinion about topics presented or discussed	t
□ Explanation of formulae and symbols □ Finds shortcomings or errors in the report □ Relevance of questions to bot the report □ Relevance of questions to bot reporter and the opponent	
□ Appropriate models, conformity of dimensions □ Relevance of the questions □ Draws attention to points mis	ssed
by the reporter or the oppone	ent
video as appropriate	
References, proper citations of ideas and input of others This sheet will be collected by the sheet will be collected by th	
Novelty of the report	
☐ Contribution to the discussion do not bend	
Final Grade: Reporter Final Grade: Opponent Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011	



Scoring	Guid	elines

Fight (Round no.): _	3	_Room:	9	_ Stage:	3	_ Problem no.: _	8
Juror: Chuan Yo	ng/	<u>`</u>	Signatu	ıre:	h	ge.	

• 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.: Belarus 5	Rev.: Macau 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 ta3	Opponent ±1	Reviewer ±1 445
 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 groun
☐ 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



	_ 0 0	0.0
CCOVIDA	Guida	lina
Scoring	Guiue	111163

Fight (Round no.): _	3	_ Room: _	9	_ Stage:	3	_ Problemno.:	
Juror: Golcia	- 10	eer du	Signatu	ıre:	M	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.

bon c panish missing and rejection		
Rep.:	Opp.:	Rev.:
5	5	5
Physics ±3	10/4	Ph., 12
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	NEGO:
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
(1)		11. 1818
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
 Explanation of formulae and symbols 	Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity	the report	V2.02
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 see archive your partial grades – please
Novelty of the report		do not bend
☐ Contribution to the discussion		do not bene
6		6
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



	Fight (Round no.): 3 Room:	$\frac{9}{2}$ Stage: $\frac{3}{2}$ Problem no.: $\frac{8}{2}$
Scoring Guideline	es Juror: Tan Jry	Signature:
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
	erstanding of the presented concepts, theories are onent critiqued the experimental technique used ingths and weaknesses of the report	
A review should show that:		
important aspects (especially the controversia	ve summary of the performances the reporter and ones) • the reviewer's personal opinion was in trivial and demonstrated, where possible, the revoy the reporter and the opponent	evidence (not just superficial observations) •
 The reporter, opponent and reviewer ea Consider the following suggestions to ac Select each partial grade from each sect 		
Rep.: Vitali	Opp.: Anustage	Rev.: Philip
Natanin 5	Opp.: Anustasia 5	Noderer 5 Plagnitur
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach Culture	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions was a	✓ Validity of conclusions ✓ Accurate answers	☐ Validity of conclusions ☐ Accurate answers
Accurate answers		Accurate allswers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	Clear and understandable
Appropriate manner	☐ Appropriate manner word and	☐ Appropriate manner ☐ Overall impression
	Overall impression followers	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
	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 t 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	dul eg. byger vessed	This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report	007	archive your partial grad
$\hfill \Box$ Contribution to the discussion	clasify expl	do not bend
	ende .	

Final Grade: Opponent

Final Grade: Reporter

Final Grade: Reviewer

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

ht (Ro	und no.):	_ Room:	9	Stage: 3	Problen	n no.: n	8.	
ror:	MONSIT		Signature	. M.	Thront		~	

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

A report should include:

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

An opposition should show that:

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

A review should show that:

- The 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.

) ~ //		11 12 1				
Rep.: RussiA 5	Opp.: RELARAS 5	Rev.: MACAU. 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				
(18)						
Reporter ±1 0 5	Opponent ±1	Reviewer ±1				
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion				
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about				
☐ Explanation of formulae and	of the report	topics presented or discussed				
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 grow				
☐ Contribution to the discussion		do not bend				
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer				



Round: Room: Fight Assistants: Stage 2 Stage 3 Stage 4

	Stage 1		Stage 2		Stage 3		Stage 4					
Team	Belarus	Macao	Russia	Macao	Russia	Belarus	Russia	Belarus		-		D
Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Alan Allinson (chair)	5	6	7	4	5	6	8	6	5			
Worasom Kundhikanjara	4	6	7	3	4	5	7	4	6			
Chuan Yong Li	4	7	7	4	6	7	6	5	7			
Sandu Mirel Golcea	3	4	5	4	5	6	5	4	6			
Joy Ton	4	5	5	5	6	7	6	4	5			
Monsit Tanasittikosol	2	5	6	4	6	6	7	5	5			
Acting Team Member	Anastasiya Podmazko	Louise Ung	Nikolay Sibiryakov	Cheu Hon In	Vitalii Matinumin	Anton Rusanow	Vitalii Matiunin	Anastasiya Podmazko	Philip Naderev Lagnito			
Rejected Problems			:	3, 10	, 9,	8,12	4,	,11 ,	12			
Accepted Problem		17			7			8				