Scoring Guidelines	Fight (Round no.): V Room: 1 Stage: 1 Problem no.: 14  Juror: Alyulai W Signature:
application of appropriate mathematics • reasonable	es and principles of the problem + an explanation of the observed phenomena + an experimental technique to gother and record data (or demanstrate the phenomena if tel findings to draw switoble conclusions + an attempt to communicate difficult or one
An opposition should show that:  • the opponent challenged the reporter's understand appropriate mathematics presented • the apponent or opponent appreciated and highlighted the strengths or	ing of the presented concepts, theories and principles • the opponent understood the ritiqued the experimental technique used and questioned the validity of the data • the nd weaknesses of the report
important aspects (especially the controversial ones)	many of the performances the reporter and opponent • the reviewer appreciated the  • the reviewer's personal opinion was in evidence (not just superficial observations) •  and demonstrated, where possible, the reviewer's understanding of concepts, theories,  eporter and the opponent
<ul> <li>The reporter, opponent and reviewer each star</li> <li>Consider the following suggestions to odd to o</li> <li>Select each partial grade from each section and</li> </ul>	r deduct from the initial 5 points.

Rep.:	Opp.:5	Rev.: 5	
Physics ±3	Physics ±3	Physics ±3	
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1 +0.6	Presentation ±1 +0.3	Presentation ±1	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
☐ Overall impression	Overall impression	Overall impression	
Reporter ±1	Opponent ±1 +0.2	Reviewer ±1 40.5	
Quality of experimental technique(s)	☐ Response to the reporter's solution ☐ Provides a thorough report and discussion		
☐ Structure	☐ Shows the strong and weak points ☐ Expresses own opinion topics presented or disc		
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in ☐ Relevance of questions to		
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 parour s	
Contribution to the discussion		do not bend	



Scoring (	Guidelines
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sht (Round no.): 5	Rooms	Stage:	Problem no.: 4	
ror: Narune		nature:	NS.	

a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena.
 an appropriate mathematics.
 reasonable experimental technique to gother 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 apponent \* 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 apponent
- 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 stort 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.: Taiwan 5	Opp.: Brazil 5.	Rev.: Singapore 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 +0.5	Presentation ±1 +0.1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Ø Overall impression	☑ Overall impression AS	Overall impression
Reporter ±1 +0.5	Opponent ±1	Reviewer ±1 +1
Quality of experimental technique(s) Was Tracker	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure MERGINE INTERNST	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	didn't do 0.5	This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		arthive your parties go
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

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light (Ro	ound no.):	Rooma	1 5	Stage: 1	_ Problem no.:	
uror;	Lobys	her	Signature	. Vh	ok	

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 gother and record data (or demanstrate 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
appropriate 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 apparent • 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 apponent

- 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		
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		
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report topics presented or discu  Finds shortcomings or errors in the report  The report topics presented or discu			
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	Final Grade: Reviewer		



ight (Round no.):	5	Room:	1	_Stage: _	1 Problem no.: 14	
					1. Roughon	

# 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 gother and record data (or demonstrate the phenomena if appropriate) \* linking of theoretical and experimental findings to ciraw 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
apponent 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 apponent \* 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

10 0 10 0

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

Rep.: 10 wdet 5	Opp.: 1/802/	Rev.: Sinspore 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 94	Presentation ±1 -0/5	Presentation ±1	
☑ Clear and understandable	☐ Clear and understandable	🗹 Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	☐ Overall impression	☐ Overall impression	
Reporter ±1 0,2	Opponent ±1	Reviewer ±1 0,4	
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion	
Structure	Shows the strong and weak points	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	reporter and the opponent	
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent	
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	-	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and	
☐ Novelty of the report		archive your paroar p	
Contribution to the discussion		do not bend	
Final Grade: Reporter 7	Final Grade: Opponent Revise	Final Grade: Reviewer Saher IDC feedback and approved by EC on 2011-11-03	

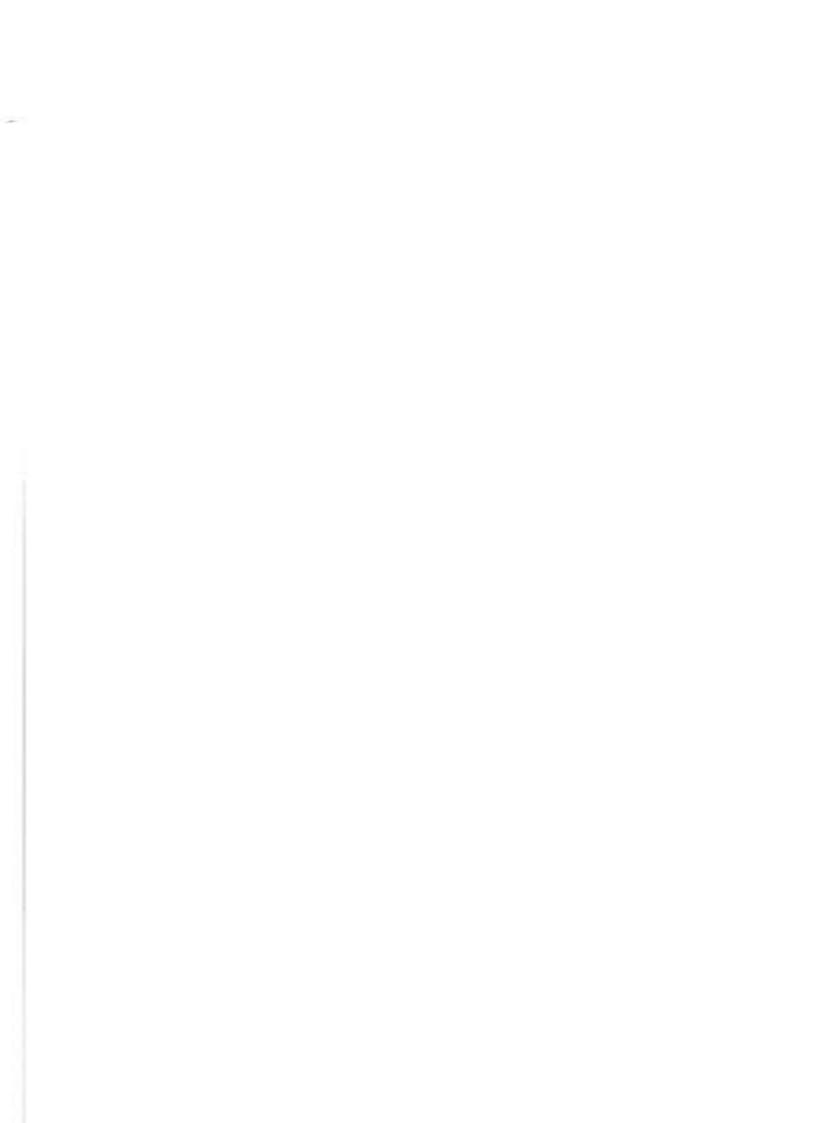
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# A review should show that:

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

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

Rep.: Jaiwan 5	Opp.:	Rev.:	
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 tas	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 +o·ſ	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	
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent	
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and	
☐ Novelty of the report		archive your parties a con-	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 7	Final Grade: Opponent	Final Grade: Reviewer	



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ight (Round no.):	V	Room:	Stage:	Problem po.: 14	
nor: Timosh	clo.			bot	

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 gother 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
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summory 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 mothematics used by the reporter and the appropriate
- 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.: Taiwah 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and mades – please
☐ Novelty of the report		archive your parties 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 2001-11-03



Scoring Guidelin	les luroe A	1111	Signature - 1	
	Orguna	100		
A report should include: • a presentation of the appropriate concepts	therefor and extendelse of the article	m + 20 em	elemention of the observed observed	****
application of appropriate mothematics • re-				
appropriate) • linking of theoretical and ex	perimental findings to draw suitable			
compilex ideas in an effective and understand	pole manner			
An opposition should show that:		with a section of	distributes in the recovered or de-	
<ul> <li>the opponent challenged the reporter's unappropriate mathematics presented • the op</li> </ul>				
opponent appreciated and highlighted the str				
A review should show that:				
the reviewer succeeded in giving an object				
important aspects (especially the controversi such personal aginions were informative, no				
niciples and appropriate mathematics used		ause, trie rev	newer's universalinating of concepts,	theunes
			0	
The grade for each of the three teams of		s, presenta	tion and for their specific role.	
The reporter, apponent and reviewer e Consider the following suggestions to a		niets		
Select each partial grade from each sec			1	
Don't punish missing 'answers' when n			mings if there were none to find	É
	1 -		all day	
ep.:5	Opp.:	5	Rev.:	5
0 70 3	- 100 L	2		3
hysics ±3 405	Physics ±3	+07	Physics ±3	10.4
Correct and relevant physics	☐ Correct and relevant physi	ics	☐ Correct and relevant ph	veire
Scientific approach	Scientific approach	4.5	☐ Scientific approach	A Sec. 2
Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions	
Accurate answers	☐ Accurate answers		☐ Accurate answers	
	-		7/x 7/20	
resentation ±1 +0.3	Presentation ±1	10.4	Presentation ±1	40.4
Clear and understandable	☐ Clear and understandable		☐ Clear and understandab	ile
Appropriate manner	☐ Appropriate manner	- 700	☐ Appropriate manner	
Overall impression	Overall impression	- 17	Overall impression	
	T		Y6 - 1/1/15	
eporter ±1	Opponent ±1	10.8	Reviewer ±1	
Quality of experimental technique(s)	Response to the reporter's solution	S	Provides a thorough rev report and discussion	new of
Structure	☐ Shows the strong and wea	k points	☐ Expresses own opinion	about
☐ Explanation of formulae and symbols ☐ Finds shortcomings or errors in		topics presented or discussed  Relevance of questions to both		
Appropriate models, conformity of dimensions the report.		reporter and the opport  Draws attention to poin	ts misse	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discus	sion	by the reporter or the o	
References, proper citations of ideas and input of others			This sheet will be collected fight assistant, so we can s	
			fight assistant, so the carri- arthine your partial grade	5 - please
Novelty of the report				
Novelty of the report Contribution to the discussion			do not bend	

Stage: Problem no.:	<u> </u>	
manue Aff	r <sup>c</sup>	
nation of the observed phenomena * an d data (or demonstrate the phenomena if an attempt to communicate difficult or		
principles • the apparent understood the dispersioned the validity of the data • the		
opponent • the reviewer appreciated the lence (not just superficial observations) • ver's understanding of concepts, theories,		
and for that constituted		
a and for their specific role.	4	
ngs if there were none to find.		
Rev.:5 Physics ±3		
☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers		
Presentation ±1 + 0.4		
Clear and understandable     Appropriate manner     Overall impression		
Reviewer ±1		
Provides a thorough review of report and discussion		
Expresses own opinion about topics presented or discussed		
Relevance of questions to both t reporter and the opponent.	nie	
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 6		

eht (Ro	ound no.):	5	Room:	1	Stage:	2	Problem no.:	2
mar	Name		- 25	Sionahu	në-	N	8.	

# 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 gother 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
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used \* the opponent critiqued the opponent critiqued the opponent critiqued the experimental technique used \* the opponent critiqued the oppon

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

Rep.: Brazil 5	Opp.: Singapon 5	Rev.: Taiwar 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 +65	Opponent ±1 +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
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☑ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be oblected by the fight assistant, so me can scan it and fight assistant, so me can scan it and
☐ Novelty of the report		archive your partial 6
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  Jaher IOC Seedback and approved by EC on 2011-11-0



Scoring Guidel	ines Juran Lobyske	om: 1 Stage: 2 Problem no.:
application of appropriate mathematics	<ul> <li>reasonable experimental technique to gother an i experimental findings to draw suitable conclu</li> </ul>	n explonation of the observed phenomena * an ad record data (or demonstrate the phenomena if islans * an attempt to communicate difficult or
An opposition should show that  • the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the	s understanding of the presented concepts, theori e apponent critiqued the experimental technique	les and principles * the opponent understood the used and questioned the validity of the data * the
important aspects (especially the control	versial ones) • the reviewer's personal opinion wa non-trivial and demonstrated, where possible, th	ter and opponent • the reviewer appreciated the is in evidence (not just superficial observations) • we reviewer's understanding of concepts, theories,
<ul> <li>The reporter, opponent and review</li> <li>Consider the following suggestions</li> <li>Select each partial grade from each</li> </ul>	ms consists of a partial grade for physics, pres wer each stort with 5 points. to odd to or deduct from the initial 5 points. section and write it in the corresponding box on no questions were posed or not finding sho	
Rep.: Brasil 5	Opp.: Singar 5	Rev.: 10: Wan 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 + (
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
	D townsists was	Appropriate manner

tep.: Brasil	Opp.: Singal	Rev.: Taiwan 5
5		
hysics ±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
resentation ±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
teporter ±1	Opponent ±1	Reviewer ±1 / +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	☐ Shows the strong and weak points	☐ 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 th 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 light assistant, so we can scan it and
Novelty of the report		archive your parties 6"
Contribution to the discussion		do not bend



Fight (Round no.): 5 Room: 1 Stage: 2 Problem no.: 2

Junor: Jalia Romach & Signature: ARManu

# A report should include:

a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the absenced phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) \* linking of theoretical and experimental findings to ciraw 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 apponent 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 stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 8/02/6	Opp.: Singapore 5	Rev.: Taiwan 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	
☐ Appropriate manner ☐ Overall impression	☐ Appropriate manner ☐ Overall impression	Clear and understandable Appropriate manner Overall impression	
Reporter ±1 O	Opponent ±1	Reviewer ±1 0/7  Provides a thorough review of	
technique(s)  Structure  Explanation of formulae and symbols	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	
Appropriate models, conformity of dimensions     Slides, on-site experiments, audio,	the report  Relevance of the questions  Contribution to the discussion	reporter and the opponent  Draws attention to points missed by the reporter or the opponent	
video, as appropriate  References, proper citations of ideas and input of others		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		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	ies
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Fight (Round no.):	+	Room:	Stage	:_2	Problem	no.:	2
turor: Ming	Feng	Sig	nature:	the	ng	Jun	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

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent 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 stort 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.:	Opp.: S 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 to.1	Opponent ±1 + 6.5	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	<ul> <li>Provides a thorough review of report and discussion</li> </ul>		
☐ Structure	Shows the strong and weak point of the report	ts Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent		
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light 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	Final Grade: Reviewer 5   5   5   5   5   5   5   5   5   5		



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ight (Round no.):	V	Room:		Stage:	(	Problem no.:	<u> </u>
uror: Vilkos	heheu	to s	Signatu	ire:		0/	

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 gother 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:

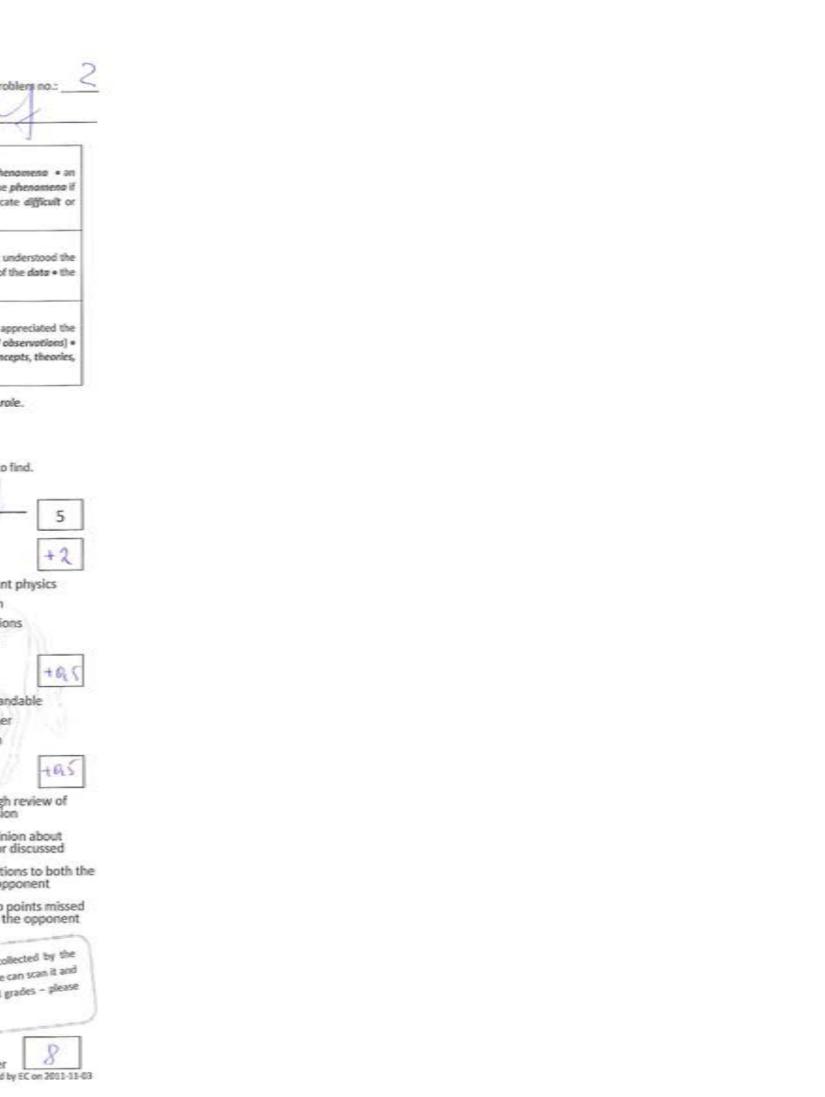
the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
opponent appreciated and highlighted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

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

Rep.: Brazil 5	Opp.: Sugapore 5	Rev.: Varwan 5		
Physics ±3	Physics ±3	Physics ±3 +2		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1 + 6, 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 ±1 495		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	Relevance of questions to both th		
☐ 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		suchive Aon, bacon Branch		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer		



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Scoring	Guia	eı	ınes

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light (Round no.):	Room:	Stage:	a Problem n	0:4
uror: Akula	iW Sign	ature:		-
1		17)		

\* 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
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent 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 apponent.
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, apparent 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		
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 reporter and the opponent      Draws attention to points missed by the reporter or the opponent		
	the report			
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions			
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion			
☐ References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parous a		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer		



ight (Round no.):	5 8	Rooms	1 Stage:	3 Proble	em no.: 4	
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# 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
appropriate 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 apponent
- 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 stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- 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.: Shyapore 5	Opp.: taiwan 5	Rev.: maxil 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 +0,9	Presentation ±1	Presentation ±1
☐ Clear and understandable	☑ Clear and understandable +	☐ Clear and understandable
☐ Appropriate manner	Appropriate manner NS	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 +0.5	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
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	the report Relevance of the questions	Draws attention to points missed
Slides, on-site experiments, audio, yideo, as appropriate	Contribution to the discussion	ask ~ parather and give explanation of his
References, proper citations of ideas and input of others		This sheet will be collected by the -0.5
☐ Novelty of the report		archive your parties grant
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  diafter IOC feedback and approved by EC on 2013-11-03



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Fight (Round no.):	5	Rooma	1	Stage:	3	Problem	no.:
Juror: Lake					1/4	oh	

\* a presentation of the appropriate concepts, theories and principles of the problem \* an explonation of the observed phenomena \* an application of appropriate mathematics + reasonable experimental technique to gother and record data (or demanstrate 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:

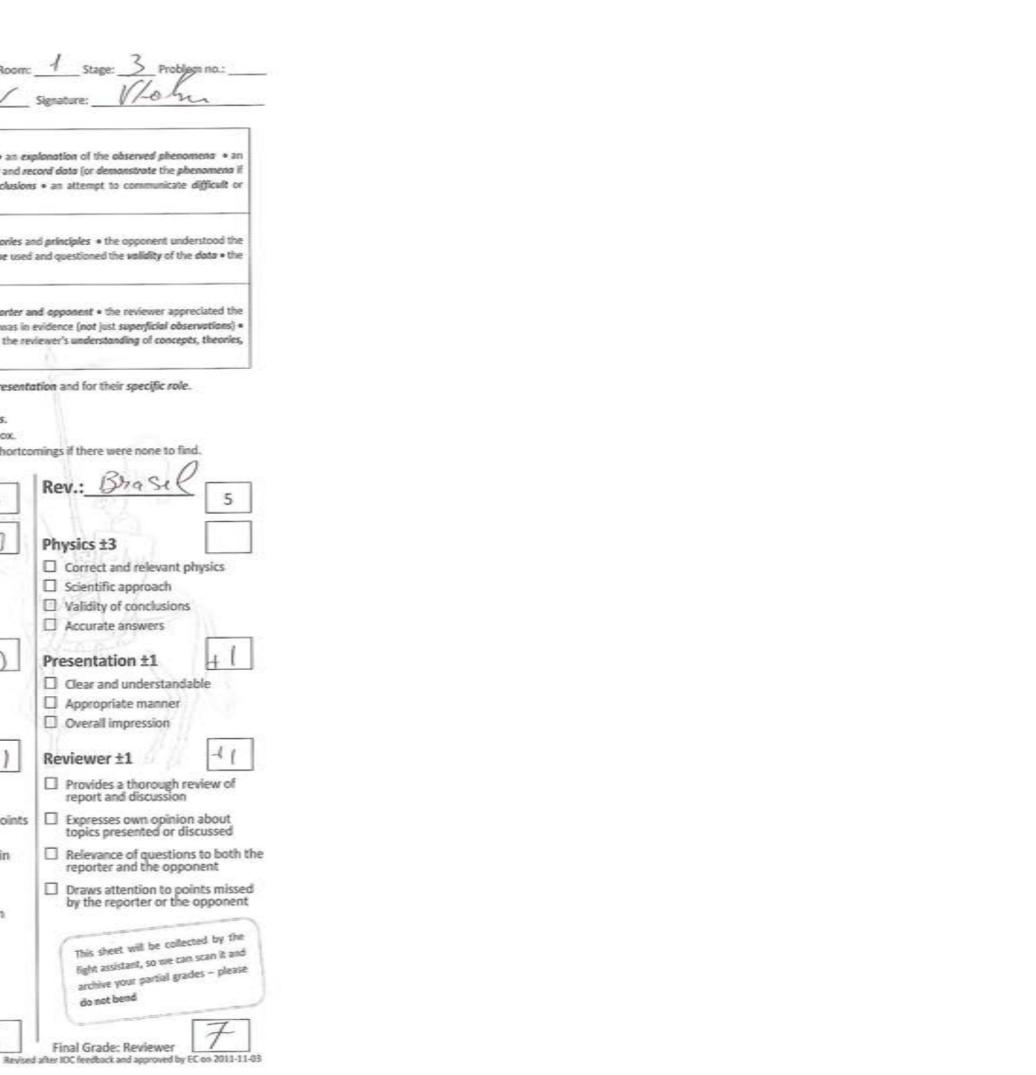
. the opponent challenged the reporter's understanding of the presented concepts, theories and principles . the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted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

- 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.: Jugop 5	Opp.: /a. Wan 5	Rev.: Dra St 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 +2	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1 +\	Opponent ±1	Reviewer ±1
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
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 use can scan it and fight assistant, so use can scan it and
☐ Novelty of the report		archive your parties o
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer



ight (Round no.):	5	Room:	1	Stage:	3	Problem no.:	4	
uror: Talien								

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 gother 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
apponent 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 apponent \* 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 apponent

- 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 stort 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.: Trinder 5	Rev.: Brazil 5
Physics ±3 2,5	Physics ±3	Physics ±3 0/5
☑ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☑ Validity of conclusions	☐ Validity of conclusions	☑ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 95
☑ Clear and understandable	☑ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 95	Opponent ±1	Reviewer ±1 0,7
☐ 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and erades – please
☐ Novelty of the report		archive your parties grant
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer

# Fight (Round no.): J Room: 1 Stage: 3 Problem no.: 4 **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 mothematics + reasonable experimental technique to gother 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

A review should show that:				
<ul> <li>the reviewer succeeded in giving an objecti</li> </ul>	ve summary of the performances	the reporter as	nd opponent * the reviewer appre	ciated the
important aspects (especially the controversion	ones) • the reviewer's personal of	pinion was in o	evidence (not just superficial obser	rustions) +
such personal opinions were informative, non-		ossible, the rev	riewer's understanding of concepts	, theories,
principles and appropriate mathematics used	by the reporter and the opponent			
The grade for each of the three teams or	onsists of a partial grade for phy	sics, presento	ntion and for their specific role.	
The reporter, opponent and reviewer ea	ch start with 5 points.			
Consider the following suggestions to a				
Select each partial grade from each sect			miner if there were none to fire	4
Don't punish missing 'answers' when no	questions were posed or not ii	numb and tro	iliaigs is triefe there isome to fair.	4
Rep.: SG	Opp.: T		Rev.: B	
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	111/	1000	V II 32	
Physics ±3	Physics ±3	+1	Physics ±3	+1
Correct and relevant physics	Correct and relevant pl	ysics	☐ Correct and relevant pl	nysics
Scientific approach	☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions		□ Validity of conclusions	
Accurate answers	☐ Accurate answers	_	☐ Accurate answers	1
Presentation ±1 +0.5	Presentation ±1	0	Presentation ±1	0
Clear and understandable	☐ Clear and understanda	ble	☐ Clear and understandal	ble
Appropriate manner	☐ Appropriate manner		☐ Appropriate manner	
☐ Overall impression	☐ Overall impression		Overall impression	
	( )		11 7/ 11	
Reporter ±1 0	Opponent ±1	3	Reviewer ±1	0
Quality of experimental technique(s)	Response to the report solution	er's	Provides a thorough re report and discussion	view of
☐ Structure	Shows the strong and v	veak points	Expresses own opinion topics presented or dis	about
Explanation of formulae and symbols	Finds shortcomings or the report	errors in	Relevance of questions reporter and the oppor	to both t
Appropriate models, conformity of dimensions	Relevance of the quest	ions	☐ Draws attention to poi	nts misser
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the dis	cussion	by the reporter or the	
References, proper citations of ideas and input of others			This sheet will be collect fight assistant, so we can	scan it and
☐ Novelty of the report			archive your parvar is	es – please
Contribution to the discussion			do not bend	
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Final Grade: Reporter	Final Grade: Opponent	6	Final Grade: Reviewer	6

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Fight (Round no.):	Room	Stage: 3	Publiem nd.	4
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mothematics \* reasonable experimental technique to gother 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
opporpriate 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.: Singapore 5	Opp.: Taiwan 5	Rev.: Brazil 5
Physics ±3 +2	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 +03	Opponent ±1	Reviewer ±1 +0c5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	the report  Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ 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 Revise	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03

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Round: S Room: Tight Assistants: Mr Vangun Parquey, Mr Thanundon Kongnok

	1	Stage 1			Stage 2		1	Stage 3			Stage 4	
Team	Taiwan	Bragil	Singapore	Bengil	Singapore	Taiwan	Singapore	Taiwan	Bredi			
luror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Opp	Rev
Assen Kyuldjev (chain)	6	6	6	b	Ч	-6	5	5	5			
Varumm Suwonjandee	7	7	E	5	7	1	1	8	b			
Valentin LobyShev	S	y	9	5	6	Ч	8	G	4			
Julian Penacher	7	Y	8	A	5	Ь	Q	5	7			
ting Feng	П	b	8	Ь	7	7	4	J	8			
gor Timoshchenko	7	5	7	6	7	R	9	7	6			
Acting Team Member	Vin - Chien Cheng	Thiago Boss-while	18 5 78 TSE	Matheus Hebrigue de Almeiba Camacho	Ye Jan Shen	Samuel Lam	Down Dim Ming.	Yimechier Chema	Matheus Hemilique de Al-neide Camacho			
Rejected Problems												
Accepted Problem	IA Chacie	of low		8 Spine	of Similar		4 listaid	Jilvs Polos	8.			

Signature Fight Assistant:

Scoring Guidelines	Fight [Round no.]: 5 Room: 2 Stage: 1 Problem no.: 11  Juror: 5 3yland Signature: 1 By ()
application of appropriate mathematics • reasonable	ies and principles of the problem * an explanation of the observed phenomena * an experimental technique to gother and record data (or demanstrate the phenomena if stall findings to draw suitable conclusions * an attempt to communicate difficult or once
An opposition should show that:  • the opponent challenged the reporter's understand appropriate mathematics presented • the opponent opponent appreciated and highlighted the strengths of the s	ding of the presented concepts, theories and principles • the opponent understood the critiqued the experimental technique used and questioned the validity of the data • the and weaknesses of the report
Important aspects (especially the controversiol ones)	imory of the performances the reporter and opponent • the reviewer appreciated the  [• the reviewer's personal opinion was in evidence (not just superficial observations) •  and demonstrated, where possible, the reviewer's understanding of concepts, theories,  reporter and the opponent
<ul> <li>The reporter, opponent and reviewer each sto</li> <li>Consider the following suggestions to add to o</li> <li>Select each partial grade from each section an</li> </ul>	or deduct from the initial 5 points.

Rep.: Belavas 5	Opp.: Bulgaria 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 -½	Opponent ±1	Reviewer ±1 0
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and	of the report	5.4.0.4.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.
symbols	Finds shortcomings or errors in the report	Relevance of questions to both to reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	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 parus s
☑ Contribution to the discussion		do not bend



Fight (Round no.): 5 Room: 2 Stage: Problem no.: 11
Junor: Hung-Child Kangnature: Bell 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 gother 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 apponent critiqued the experimental technique used and questioned the validity of the data \* the
apponent 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>BY</u> 5	Opp.: 39 5	Rev.:_ U.S 5
Physics ±3	Physics ±3	Physics ±3
	Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☑ Scientific approach	☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
M Clear and understandable	Clear and understandable	☐ Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
✓ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		arthive your parses o
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5



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Fight (Round no.):	5	Room: /	2	Stage:	Problem no	11 :
uror: Olga L					0	

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

Rep.: 5	Opp.: 8 G 5	Rev.: US 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0,5	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	Ell Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1 +0,5	Opponent ±1 +95	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
⊕ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and symbols	of the report  Finds shortcomings or errors in	topics presented or discussed  Relevance of questions to both the
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	[ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial grand
Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent Final Grade: Opponent	Final Grade: Reviewer after IOC feedback and approved by EC on 2013-31-03

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Scoring	Guia	eiines

ight (Round no.):	Y. Room:	2. Stage	I. Prof	blem no.: M.
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother 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 apponent 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 apponent
- 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.: Belgrus 5	Opp.: 3.lgaria 5	Rev.:#\$4 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 sour	☐ 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 / topics presented or discussed
Explanation of formulae and symbols	of the report  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
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and 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	Final Grade: Reviewer



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ight (Round no.):	5	Room:	2	Stage: _1	Problem no.: 4	
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or complex ideas in an effective and understandable manner

# An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
apponent 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.: Selong	5	Opp.: blynn	- 5	Rev.: USA.	5
Physics ±3	+1,5	Physics ±3	4{	Physics ±3	0
El Correct and relevant phys	sics	E Correct and relevant ph	rysics	Correct and relevant ph	ysics
El Scientific approach		☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusions		☐ Validity of conclusions		☐ Validity of conclusions	
☐ Accurate answers	1,725	☐ Accurate answers		☐ Accurate answers	
Presentation ±1	0	Presentation ±1	0	Presentation ±1	0
☐ Clear and understandable	e	Clear and understandal	ble	☐ Clear and understandab	le
☐ Appropriate manner		☐ Appropriate manner		☐ Appropriate manner	
Overall impression		Overall impression		☐ Overall impression	
Reporter ±1	+0,5	Opponent ±1	0	Reviewer ±1	0
Quality of experimental technique(s)		Response to the reporter's solution		Provides a thorough review of report and discussion	
☐ Structure		Shows the strong and v	veak points	Expresses own opinion about topics presented or discussed	
<ul> <li>Explanation of formulae a symbols</li> </ul>	and	☐ Finds shortcomings or e	errors in	Relevance of questions to both	
	formits:	the report	- i e e e W	reporter and the opponent	
<ul> <li>Appropriate models, con of dimensions</li> </ul>	totimity	☐ Relevance of the questions ☐ Draws attention to po		ts missed	
Slides, on-site experiments, audio, video, as appropriate		☐ Contribution to the disc	bution to the discussion by the reporter or the opp		
References, proper citations of ideas and input of others				This sheet will be collected fight assistant, so we can see and enade	d by the
☐ Movelty of the report				archive your partial by	5 - Mean
☐ Contribution to the discu	ssion			do not bend	
Final Grade: Reporter	7	Final Grade: Opponent	6	Final Grade: Reviewer	5



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ight (Round no.):		Room:	_	_ Stage: _	Probler	n no.:
uror: Prust	Ra	a sow's	Signatu	re: m	ayes	

\* a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the absenced phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gother 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
appropriate 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
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 the report	topics presented or discussed  Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties o
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



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Fight (Round no.):	Room: 2	Stage: 2	_ Problem no.:	5
turor: S. Byland	Signatur	e:_ /-	8,0	

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 gother 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 apponent

- 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.: Julyania 5	Opp.: USA 5	Rev.: Belanus 5		
Physics ±3	Physics ±3 + 1/2	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 +1/2	Presentation ±1	Presentation ±1 -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 +½	Reviewer ±1 41/2		
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 point     of the separt	ts Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parsas is		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5		



Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer she IOC feedback and approved by EC on 2011-1
Contribution to the discussion		201100
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Beferences, proper citations of ideas and input of others		thes sheet will be collected by the sail seaff as the sail next has an or, the skiets the sail of the
Slides, on-site experiments, audio, video, as appropriate	scussib efft of notitudintno	by the reporter or the oppone
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Structure	sew bne groots the strong and wea	Expresses own opinion about becaused or discussed
(V Quality of experimental technique(s)	Response to the reporter's	o Provides a thorough review of a report and discussion
Reporter ±1	Opponent ±1	Reviewer ±1
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P Appropriate manner	noissenqmi llerevO 🗌	noissandmillerav0
	/	Tennem etsingorge A
aldsbnetzrabnu bne sealD,	Clear and understandable	eldebnetstabnu bne seeD
Presentation ±1	Presentation ±1	L± noitetnesen¶
Siewers aterioo A	answers Stering Answers	Accurate answers
The Validity of conclusions □	A Validity of condusions	Validity of conclusions
Cy Scientific approach	Colentific approach	☐ Scientific approach
Correct and relevant physics	Correct and relevant physic	☐ Correct and relevant physics
Physics ±3	Physics ±3	Physics ±3
<u> </u>	3 755	
Rep.:   School	Cpp:.qqO	S
n narw 'zrawens' aniezim rizinug 1'nog •	2/1	7.0
<ul> <li>The reporter, opponent and reviewer to Consider the following suggestions to e</li> <li>Select each partial grade from each sea</li> </ul>	oq 2 leitini arlt mort tsubab to ot bb	
The grade for each of the three teams	esisyng not ebertial grade for physics	tion and for their specific role.
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A reviews succeeded in giving an object in giving an object important espects (especially the controvers such personal opinions were informative, no principles and opinions were informative.	al ones) • the reviewer's personal opini -trivial and demonstrated, where possi	vidence (not just superficial observations)
<ul> <li>the reviewer succeeded in giving an object important aspects (especially the controvers such personal opinions were informative, no</li> </ul>	though although the experimental tracking the report and weakness of the report and sections and sections and sections and sections are secured as the resonant and sections and sections are resonant and sections and sections are resonant as the resonant are resonant are resonant are resonant as the resonant are resonant a	hit • alteb and the wallelity of the date • the second of perceivance and • the second of betreivance and • the second of the perceivance of the second of the second of the second of the second of the second of the second of the second of the second of the second of t
the opponent challenged the reporter's un appropriate mathematics presented • the op- opponent appreciated and highlighted the str.  A review should show that:     the reviewer succeeded in giving an object important aspects (especially the controvers) such personal opinions were informative, no	soriolie experimental technique to god perimental findings to draw suitable of the manner.  Forest description of the presented concepts,  forest fathermental techniques of the experimental techniques and weakness of the income the programment of the case of the recommendation of the case of the summers of the same of the case of the same programment of the case o	ond data for demonstrate the phenomens in
presentation of the appropriate concept approach of appropriate of theoretical and expendentials.     An opposition should show that:     the opponent challenged the reporter's an appropriate mathematics presented a the opponent approach the presented and highlighted the stropposent approach approach and the stropposent approach and the stropposent approach approach and the stropposent approach	soriolie experimental technique to god perimental findings to draw suitable of the manner.  Forest description of the presented concepts,  forest fathermental techniques of the experimental techniques and weakness of the income the programment of the case of the recommendation of the case of the summers of the same of the case of the same programment of the case o	ond data (or demonstrate the phenomena is
presentation of the appropriate concept approach of appropriate of theoretical and expendentials.     An opposition should show that:     the opponent challenged the reporter's an appropriate mathematics presented a the opponent approach the presented and highlighted the stropposent approach approach and the stropposent approach and the stropposent approach approach and the stropposent approach	Theories and principles of the problem of the manner of the manner of the manner of the presented concepts, the problem of the problem of the manner of the manner of the representation of the problem o	ond data (or demonstrate the phenomens

Fight (Round no.):	5	Boom:	2	Stage: 2	2 Pro	blem no.:	5
Juror: Olga I		6110	Cinnet	(Q	Cut	2	
muc. Fich -	117 1	ev4_	Signat	ure; C			

# 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 mothematics • reasonable experimental technique to gother 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:

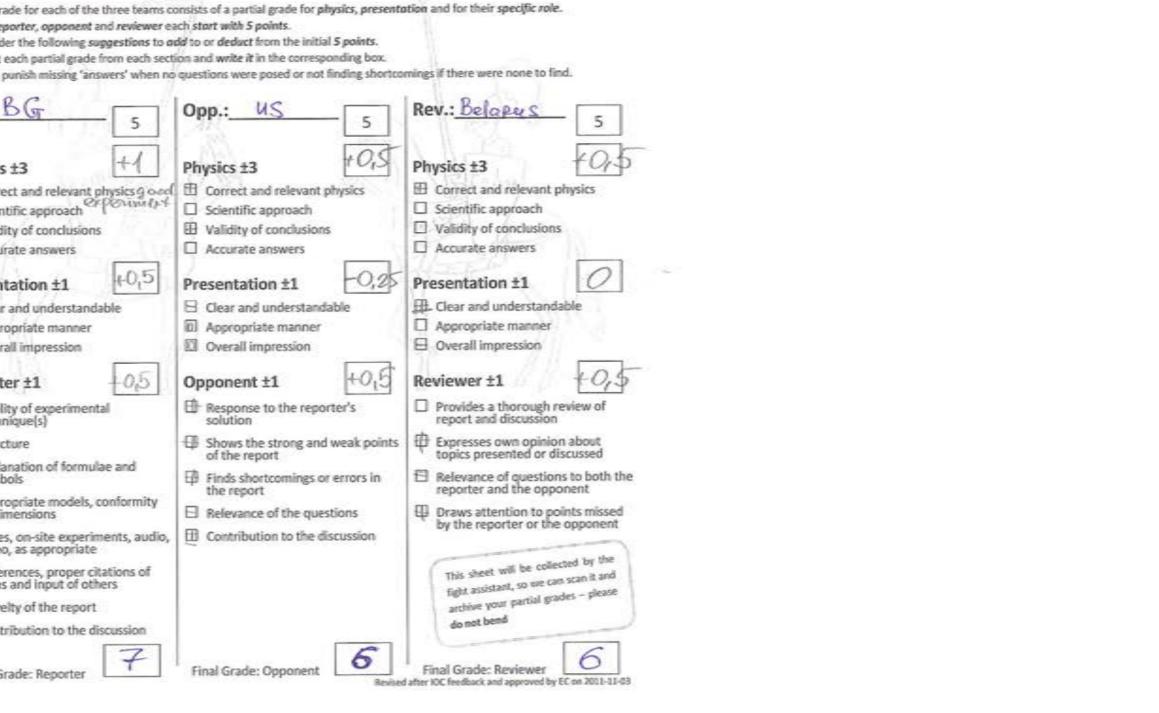
. the opponent challenged the reporter's understanding of the presented concepts, theories and principles. The opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted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

- 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 stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- 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>b</u> 6	Opp.: US 5	Rev.: Belagus 5
Physics ±3	Physics ±3	Physics ±3
- Correct and relevant physics glood	Correct and relevant physics	⊞ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions		☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 (-0,5)	Presentation ±1 -0,25	Presentation ±1
th Clear and understandable	☐ Clear and understandable	HL Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1 +0,5	Reviewer ±1 +0,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
⊞ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	of the report  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 me can scan it and fight assistant, so me can scan it and
→ Novelty of the report		archive your parties of
⊞ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6



Fight (Round no.):	T. Boom	2	Stage:	N.	Problem no.:	5.
uror TANO É ON				-63		

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

Rep.: 30LGAZIA 5	Opp.: FETTOME III	Rev.: 3ELAZUS 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 +1h2	Presentation ±1	Presentation ±1 -1/4
☐ Clear and understandable	E Clear and understandable XQV	Elear and understandable Frak
☑ Appropriate manner	Appropriate manner	☑ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1 +1/2	Reviewer ±1 +1/2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points	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
	Contribution to the discussion	by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	E) Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐, Novelty of the report		archive your paroar a
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.):	5	Rooms	2	_Stage:	2	Problem no.:	5
Juror: Falcher	mai	elis	Signat	ure:	N		

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 gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or
complex ideas in an effective and understandable manner

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- 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.: Bulyana 5	Opp.:_ USA 5	Rev.: Belarus 5
Physics ±3	7 177700	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 0	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 D	Opponent ±1 0	Reviewer ±1 9,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformit of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, au video, as appropriate	dio, 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 light assistant, so we can scan it and most assistant, so we can scan it and
☐ Novelty of the report		archive your parus a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 4	Final Grade: Opponent 5	Final Grade: Reviewer af after IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.):	5_ Ro	omcst	age: 5 Prol	ilem no.: 5
luror: Print	Kalas	WM Signature:	ogat ange	

a presentation of the appropriate concepts, theories and principles of the problem \* an exploration of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother 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
appropriate appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent \* the reviewer appreciated the
  important aspects (especially the controversial ones) \* the reviewer's personal opinion was in evidence (not just superficial observations) \*
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  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 stort 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
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	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 me can scan it and fight assistant, so me can scan it and
☐ Novelty of the report		archive your parties to
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



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Fight (Round no.): 5	Room: 2	Stage: 3	Problem no.:13
suror: 5 Byland	Signatur	e: 32	0

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 gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or
complex ideas in an effective and understandable manner

# An opposition should show that:

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appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate 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,
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- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: USA 5	Opp.: Bolows 5	Rev.: Bulgary 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
Dr 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 +1/4
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☑ Structure		Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity	the report	
of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, aud video, as appropriate</li> </ul>	lio, Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so use can scan it and seems of please
		archive your parties by
🗹 Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer  6 after IOC feedback and approved by EC on 2011-11-03



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

Juror: Hung-Chih Kan Signature: 10 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 gother 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
apponent 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 apponent
- · 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 paints.
- Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: <u>US</u> 5	Opp.: 87 5	Rev.:_ B 4 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
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		anthine your parties or
☐ 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.): 5 Room: 2 Stage: 3 Problem no.: 13

# A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed phenomena · an application of appropriate mathematics • reasonable experimental technique to gother 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 apparent 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 stort 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 Opp.: Belacus Rev.: Bulgary

5	315	5
Physics ±3 -0,5	Physics ±3	Physics ±3 + 0, 5
Correct and relevant physics	El Correct and relevant physics	Correct and relevant physics
☐ Scientific approach AC ??	□ Scientific approach     □	☼ Scientific approach
☐ Validity of conclusions	□ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	☐ Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	☑ Overall impression	Overall impression
Reporter ±1 -0,5	Opponent ±1	Reviewer ±1 4 0,5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
⊞ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in	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
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 most grades - please.
☐ Novelty of the report		archive your parises o
① Contribution to the discussion		do not bend
Seed Condu Secretary 4	Final Grade: Onnonent	Final Grade: Reviewer 6

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

Scoring Gui	de	lin	es
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Fight (Round no.): Room	L Stage:	M. Problem no.: 13.
WOOD THURSDAY DAGGAR		Par

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 switable 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
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  important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
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- · 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/SA 5	Opp.: 3darus 5	Rev.: Sulgaria 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 çig(/
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 -1/2	Opponent ±1	Reviewer ±1 4/2
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	E/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 parus- s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer



Fight (Round no.):	5	Room:	2	Stage:	3	Problem no.: 13
home Foller 1	Morine	it	Signat	ture /	ty	

# 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 gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or
complex ideas in an effective and understandable manner

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the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
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  important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
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- The reporter, opponent and reviewer each stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 paints.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't purish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 454 5	Opp.: Belazus 5	Rev.: Bugaria 5		
Physics ±3	Physics ±3	Physics ±3		
El 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 0	Presentation ±1 0		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable ☐ Appropriate manner		
☐ Appropriate manner	☐ Appropriate manner			
Overall impression	Overall impression	Overall impression		
Reporter ±1 +0,5	Opponent ±1	Reviewer ±1 10,5		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed     Relevance of questions to both the reporter and the opponent		
Explanation of formulae and symbols	☐ Finds shortcomings or errors in			
Appropriate models, conformity of dimensions	the report  Relevance of the questions	[f] 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 light assistant, so we can scan it and light assistant, so we can scan it and		
☐ Novelty of the report		archive your parties s		
Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer S after IOC feedback and approved by EC on 2011-11-03		



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Scoring	(-1)	un	0	ım	DE
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	/	100			
ight (Round no.):	S Roo	_2	State: 5	Problem no	0.1
ror: Pruet	le lee	- Correct	1		
uron: True	Ka 450	NO4Signature	Caro -	onlying	

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 gother and record data (or demonstrate the phenomena if appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or complex ideas in an effective and understandable manner

### An opposition should show that:

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

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



/ Jirapom Surnjue

	I.	Stage 1		1	Stage 2		I	Stage 3			Stage 4	
Team	Belarus	Bulgaria	USA	Bulgaria	USA.	Belarus	USA	be lans	Bulgaria			
Juror	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Samuel Byland	5	b	6	6	6	5	6	6	6			
Hung - Chih Kan	6	7	5	6	8	5	7	7	6			
Olga Inisheva	6	7	5	7	6	6	4	7	6			
Dagmar Panosova	6	Ь	5	6	5	5	4	7	b			
Zakhar Maizelis	7	6	5	4	5	5	4	7	7			
Privet Kalasu won	7	6	6	5	6	7	6	6	7			
Acting Team Member	Dmitriy BARAnov	Difyan Hristov	Karl Sevick	Nikolay N; kolov	John Lukowski	Anton Rusanov	John Lukowski	Dmitriy Baranov	Dilyan Hristov			
Rejected Problems												
Accepted Problem		11			5			13				

Signature Fight Assistant: K. toloway Double-checked with Scoring Guidelines by second Fight Assistant (signature): Jin pow

Scoring Guideli	nes Juror: F. SON 6	m: 3 Stage: Problem no.: 13 Signature: Sony		
application of appropriate mothematics +	reasonable experimental technique to gother and experimental findings to draw suitable conclus	explanation of the observed phenomena • an irecord data (or demonstrate the phenomena if lons • an attempt to communicate difficult or		
An opposition should show that • the opponent challenged the reporter's a appropriate mathematics presented • the opponent appreciated and highlighted the s	inderstanding of the presented concepts, theorie apponent critiqued the experimental technique o	s and principles • the opponent understood the sed and questioned the validity of the data • the		
Important aspects (especially the controve	rsial ones) • the reviewer's personal opinion was on-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 Consider the following suggestions to Select each partial grade from each s	s consists of a partial grade for physics, preser each start with 5 points. b odd to or deduct from the initial 5 points. ection and write it in the corresponding box. no questions were posed or not finding shor			
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		
Presentation ±1	Presentation ±1 ☐ Clear and understandable			
Presentation ±1	Presentation ±1	☐ Clear and understandable		
Presentation ±1  Clear and understandable  Appropriate manner  Overall impression	Presentation ±1  Clear and understandable Appropriate manner Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression		
Presentation ±1  Clear and understandable  Appropriate manner	Presentation ±1  ☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandable ☐ Appropriate manner		
Presentation ±1  Clear and understandable  Appropriate manner  Overall impression	Presentation ±1  Clear and understandable Appropriate manner Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression		

important aspects (especially the controversit	ive summary of the performances the reporter a of ones) • the reviewer's personal opinion was in -trivial and demonstrated, where possible, the re- by the reporter and the opponent	evidence (not just superficial observations) •		
<ul> <li>The reporter, apponent and reviewer expensions to a Select each partial grade from each section.</li> </ul>	dd to or deduct from the initial 5 points.			
Rep.:_ HU	Opp.: Swithland 5	Rev.: Australia 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points	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 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		by the reporter or the apponent		
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and		
☐ Novelty of the report		archive your parous pre-		
Contribution to the discussion		do not bend		
Final Grade: Reporter 7	Final Grade: Opponent	Final Grade: Reviewer 6 after IOC feedback and approved by EC on 2011-11-0		

Scoring	Guid	oli	noc
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ight (Round no.): _	5	Rooms	3	Stage:	1	Problem no.: 13	
Andre.		-	ionahu	re:	No	citetion	

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 gother 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
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent \* 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 mothematics 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.: Kungory 5	Opp.: Suitzerland 5	Rev.: Australia 5		
Physics ±3	Physics ±3 + 1	Physics ±3		
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both ti reporter and the opponent     Draws attention to points missed by the reporter or the opponent		
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	the report  Relevance of the questions			
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion			
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties grown		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer 6 after 100 feedback and approved by EC on 2011-11-03		



Scoring	Guidelines

Fight (Round no.):	5	Room; 3	Stage:	Pypblem n	0.:
wor. Eulis	ky	V. Signa	ture:	AD.	

a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw switoble 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 apponent critiqued the experimental technique used and questioned the validity of the data \* the
apponent 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 apparent • 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 apponent

- 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.: Switzerland 5	Rev.: Australia 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	
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1 0.5	Opponent ±1	Reviewer ±1 0,>
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
⊞ Structure	Shows the strong and weak po	oints Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or errors i the report	-
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report		archive your parties grant
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer 7



# Scoring Guidelines

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

# A report should include:

a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the absenced phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gother 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
appropriate appreciated and highlighted the strengths and weaknesses of the report

#### A review should show that:

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

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

Rep.: Hungany 5	Opp.: Switzerland 5	Rev.: Austmilia. 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 + 6-5	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 +6.5	Opponent ±1 +1	Reviewer ±1 40,5
Quality of experimental Yound's 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.
<ul> <li>Slides, on-site experiments, audio video, as appropriate</li> </ul>	, Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your pardar s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer 6

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



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Fight (Round no.):	5	Rooma	3	Stage: 1	Problem no.: 1	\$
STAULCE					Por 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 gother 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
appropriate 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.: SWITZERCAND 5	Rev.: AUSTRALIA 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 +1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 405	Opponent ±1 +AC	Reviewer ±1 44
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
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 parder are
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent	Final Grade: Reviewer

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ight (Ro	ound no.k	5	Room:	3	Stage:	1	Problem no.:	13
eror:	Teur	Jay			re: 10	0		

 a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena. application of appropriate mathematics \* reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) . Inking 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:

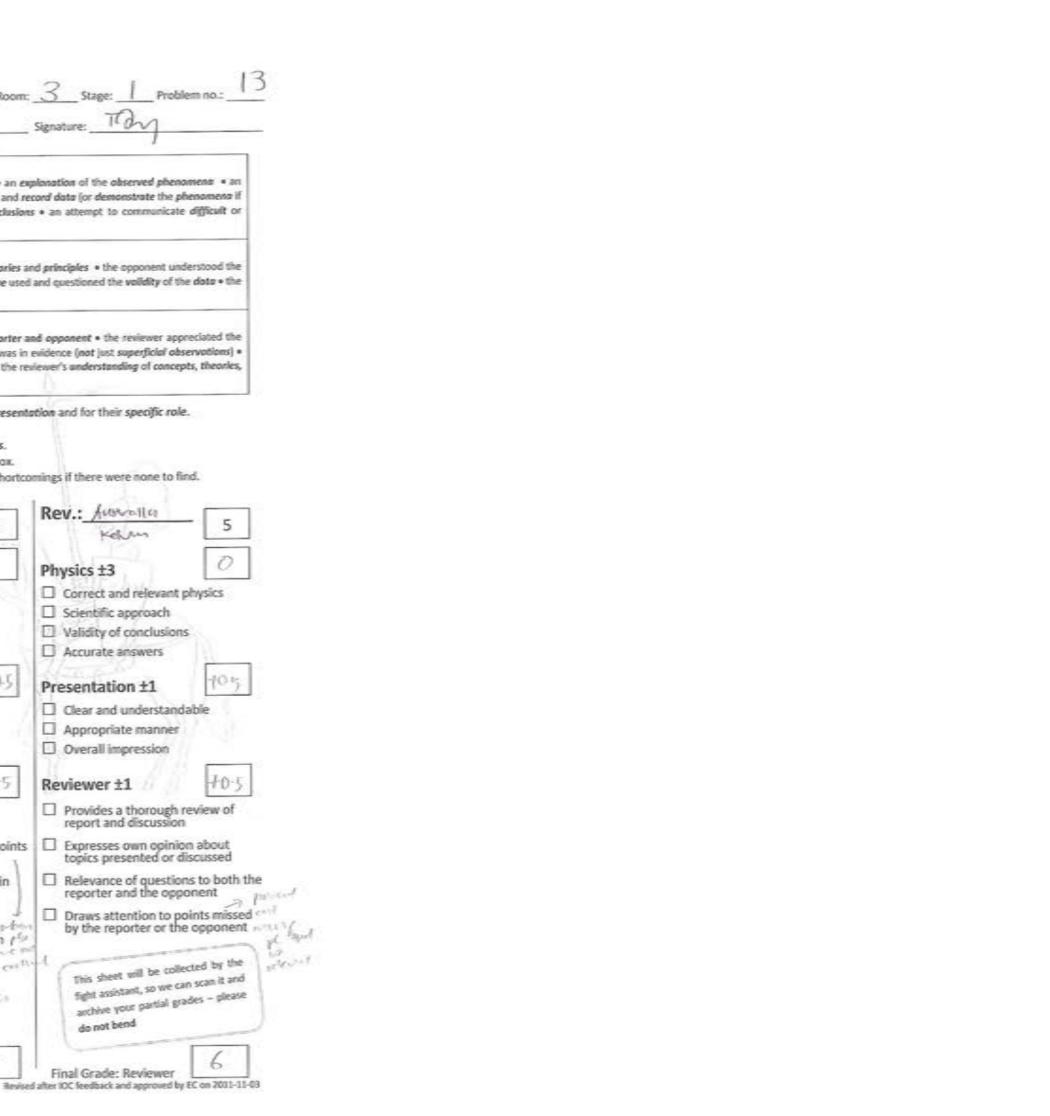
 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 abservations) • 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 stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions 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
Scientific approach Validity of conclusions Accurate answers  Presentation ±1  Clear and understandable Appropriate manner	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers  Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner
Validity of conclusions  Accurate answers  Presentation ±1  Clear and understandable  Appropriate manner	☐ Validity of conclusions ☐ Accurate answers  Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner
Presentation ±1  Clear and understandable  Appropriate manner	Presentation ±1  Clear and understandable  Appropriate manner
Presentation ±1  Clear and understandable  Appropriate manner	Presentation ±1 (0.5)  Clear and understandable Appropriate manner
Clear and understandable     Appropriate manner	Clear and understandable     Appropriate manner
☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression
Opponent ±1	Reviewer ±1 40-5
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	☐ Relevance of questions to both the
☐ Relevance of the questions	☐ Draws attention to points missed
☐ Contribution to the discussion / ⊆	by the reporter or the opponent
questions all soluting of	This sheet was or
	anchive your partial 6
no share presty	do not bend
The second secon	Response to the reporter's solution  Shows the strong and weak points of the report  Finds shortcomings or errors in the report  Relevance of the questions  Contribution to the discussion  Questions of TET montals  First which from



Scoring Guideli	nec - a	3 Stage: 2 Problem no.: 4
A report should include:		0
application of appropriate mathematics •	pts, theories and principles of the problem * an exp reasonable experimental technique to gother and re- experimental findings to draw suitable conclusions induble manner	rord data (or demonstrate the phenomena if
An opposition should show that • the opponent challenged the reporter's opporpriate mathematics presented • the opponent appreciated and highlighted the	understanding of the presented concepts, theories ar opponent critiqued the experimental technique used	d principles • the opponent understood the and questioned the validity of the data • the
Important aspects (especially the controls	lective summary of the performances the reporter as ersiol ones) • the reviewer's personal opinion was in one-trivial and demonstrated, where possible, the rev	evidence (not just superficial observations) •
	Opp.:	Rev.: Hungard 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or errors in the report	topics presented or discussed  Relevance of questions to both the reporter and the opponent
	I The fettori	PERSONAL REPORT OF CHARACTER
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points misser

Capuina Cuidalia	Fight (Round no.): 5 Room:	3 Stage: 2 Problem no.: 4
Scoring Guidelin	les Juror: F. SON &	Signature Son
application of appropriate mathematics • re	s, theories and principles of the problem * an ex- asonable experimental technique to gother and re- perimental findings to draw suitable conclusion lable manner	cord data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's un appropriate mathematics presented • the op opponent appreciated and highlighted the str	derstanding of the presented concepts, theories as ponent critiqued the experimental technique used engths and weaknesses of the report	nd principles • the opponent understood the and questioned the validity of the data • the
important aspects (especially the controvers	tive summary of the performances the reporter a follones) • the reviewer's personal opinion was in o-trivial and demonstrated, where possible, the re- of by the reporter and the opponent	evidence (not just superficial observations) •
The reporter, opponent and reviewer of Consider the following suggestions to Select each partial grade from each set	consists of a partial grade for physics, presents each start with 5 points. add to or deduct from the initial 5 points. ction and write it in the corresponding box. o questions were posed or not finding shortco	
Rep.: Swaling 5	Opp.: Austrilia 5	Rev.: Hungary 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both th reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio video, as appropriate</li> </ul>	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 light assistant, so we can scan it and sind grades - please.
☐ Novelty of the report		archive your partial grant
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

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ight (Round no.):	5	Room:	3	Stage:	2	Problem no.:	4
non: Audier	Kost	In s	ignatu	rec /	Ku	ucular	

• 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 gother 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 mothematics 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.: Sulberland  Holiael Postminus 5	Opp.: Australia 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	☐ 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 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 5



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Scoring	Guidelines	

ight (Round no.):	5	Page:	3	Chappy	IL.	roblem no.:	4
uror: Kulin	ki	V.	Signatu	re:	10	TOOLEH TOO.	

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
appropriate 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 stort 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.: Switzerla 5	Opp.: Australia 5	Rev.: Mungary 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 0ァ	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 point	Expresses own opinion about topics presented or discussed
Explanation of formulae and	of the report  Finds shortcomings or errors in	Relevance of questions to both the
symbols	the report	reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ 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 grades
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  Final Grade: Reviewer  ad after IOC feedback and approved by EC on 2011-11-83

# Scoring Guidelines

Fight (Round no.): 5 Room: 3 Stage: 2 Problem no.: 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 gother 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 apparent challenged the reporter's understanding of the presented concepts, theories and principles \* the apparent understood the
apparapriate mathematics presented \* the apparent critiqued the experimental technique used and questioned the validity of the data \* the
apparent 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 stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 paints.
- · Select each partial grade from each section and write it in the corresponding box.
- · Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Switzerland 5	Opp.: Australia 5	Rev.: Hongary 5
Physics ±3	Physics ±3 +	Physics ±3 +05
☐ Correct and relevant physics 11	☐ Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 +	Opponent ±1	Reviewer ±1 +0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so use can scan it and fight assistant, so use can scan it and
☐ Novelty of the report		archive your parties or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 6



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ight (Round no.): 5	Room:	3	Stage:	2	Problem no.:	4
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mothematics \* reasonable experimental technique to gother 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 controversiol 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 apponent.
- . 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 stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.
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Rep.: AUSTRALIA 5	Opp.: AUSTRACIA 5	Rev.: HUNGARY 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +/	Presentation ±1	Presentation ±1
	☐ Clear and understandable	☐ Clear and understandable
	☐ Appropriate manner him ( )	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1 4/	Opponent ±1	Reviewer ±1 +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
⊞ Structure	☐ Shows the strong and weak points	Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols		Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ 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 groots
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



Scoring Guidel	ines Junor: Tem Fig.	
application of appropriate mathematics	repts, theories and principles of the problem + an • reasonable experimental technique to gother and d experimental findings to draw suitable conclus	record data (or demonstrate the phenomena if
complex ideas in an effective and underst		and a subside to communicate adjusted on
	s understanding of the presented concepts, theorie e opponent critiqued the experimental technique u	
Important aspects (especially the control	bjective summary of the performances the reporte versiof ones) • the reviewer's personol opinion was non-trivial and demonstrated, where possible, the used by the reporter and the opponent	in evidence (nat just superficial abservations) *
Don't punish missing 'answers' whe  Rep.: Swittehand  5	Opp.: Autivalia	Rev.: Hungany. 5
Physics ±3	Physics ±3	Noet Physics ±3
☐ Correct and relevant physics 】	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach (10)		☐ Scientific approach
☐ Validity of conclusions 141	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers and 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

	add to or deduct from the initial 5 points. tion and write it in the corresponding box.	
	questions were pased or not finding shortco	mings if there were none to find.
Rep.: Switzehud 5	Opp.: Author	Rev.: Hurge 5
hysics ±3	Physics ±3	Physics ±3
Correct and relevant physics ]	Correct and relevant physics	☐ Correct and relevant physics
Scientific approach Galage	☐ Scientific approach	☐ Scientific approach
Validity of conclusions 1.1	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1 (	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure or har specific	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed
Slides, on-site experiments, audio,	☐ Contribution to the discussion	by the reporter or the opponent
video, as appropriate  References, proper citations of		This sheet will be collected by the
ideas and input of others		This sheet will be come can scan it and fight assistant, so we can scan it and archive your partial grades - please
Novelty of the report	1	do not bend
Contribution to the discussion		do not see

Scoring Guidelin	oc .	Room: 3 Stage: 3 Problem no.: 16
oorning Guraciiii	Juror: F JON	6 Signature: fr. Smily
report should include:		1
application of appropriate mathematics • res	sonable experimental technique to gathe erimental findings to draw suitable co	* an explanation of the observed phenomena * an er and record data (or demonstrate the phenomena if solutions * an attempt to communicate difficult or
그 이 그리 경우 경우는 경우 이 아이를 가지 않는 것이 되었다.	onent critiqued the experimental techniq	eories and principles • the opponent understood the see used and questioned the voildity of the date • the
mportant aspects (especially the controversia	if ones) • the reviewer's personal opinion trivial and demonstrated, where possible	porter and opponent • the reviewer appreciated the rwas in evidence (not just superficial observations) • the reviewer's understanding of concepts, theories,
The grade for each of the three teams of The reporter, opponent and reviewer ea Consider the following suggestions to or Select each partial grade from each sect Don't punish missing 'answers' when no	ch stort with 5 points. dd to or deduct from the initial 5 point on and write it in the corresponding I	és. box.
ep.: Autrilia 5	Opp.: Hungray	Rev.: Supplicad 5
hysics ±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
resentation ±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
eporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	<ul> <li>Provides a thorough review of report and discussion</li> </ul>
Structure	Shows the strong and weak p of the report	points 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
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 groots
Contribution to the discussion		do not bend
Final Grade: Reporter 4	Final Grade: Opponent	Final Grade: Reviewer Revised after IOC feedback and approved by EC gir 2013-11-0

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ight (Round no.): _	5	Room:	3	Stage:	3	Problem no.:	16
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\* a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gother 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
appropriate 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 stort 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.: Authoria 5	Opp.: Mungary 5	Rev.: Surteerland 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 symbols	of the report  Finds shortcomings or errors in	topics presented or discussed  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
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties grant
☐ 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 Gu	ıideline	S
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ight (Hound no.):	2 80	om:	Stage: 411	Problemin	0
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an appropriate mothematics \* reasonable experimental technique to gother 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
appropriate mathematics presented .

# 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 stort 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.: Hungary 5	Rev.: Switzerland 5
Physics ±3  E 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	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1  Clear and understandable Appropriate manner Overall impression
Reporter ±1  Quality of experimental technique(s)  Structure  Explanation of formulae and symbols  Appropriate models, conformity of dimensions  Slides, on-site experiments, audio, video, as appropriate  References, proper citations of ideas and input of others  Novelty of the report  Contribution to the discussion	Opponent ±1  Response to the reporter's solution  Shows the strong and weak points of the report  Finds shortcomings or errors in the report  Relevance of the questions  Contribution to the discussion	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 fight assistant, so we can scan it and archive your partial grades – please do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer safter IOC feedback and approved by EC on 2011-11-03



# Fight (Round no.): 5 Room: 3 Stage: 3 Problem no.: 16 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 apponent challenged the reporter's understanding of the presented concepts, theories and principles \* the apponent understood the appropriate mathematics presented • the apponent 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.

Rep.: Australia. 5	Opp.: Hugary 5	Rev.: Switzerland 5
Physics ±3	Physics ±3 +0.5	Physics ±3 +6.5
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +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 th
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
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your pareas grant
Contribution to the discussion	0	do not bend



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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gother 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
appropriate 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 state of the s

- 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.: AUS TRACIA 5	Opp.: HUNGARY 5	Rev.: SWITTERIAN 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	E 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	El Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	☐ Overall impression
- colorasol in presability		The Will Facility
Reporter ±1 +/	Opponent ±1 +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	Expresses own opinion about topics presented or discussed
Explanation of formulae and	of the report  Finds shortcomings or errors in	Relevance of questions to both the
symbols	the report	reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
→ III Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parcer is
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 7	Final Grade: Reviewer



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Scoring	Guideline	15
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ight (Ro	und no.):	5	Rooms	3	_Stage:	3	_ Problem no.: _	16
uror:	Town	Jy		Signatu	re:	Pa	n	

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 gother 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:

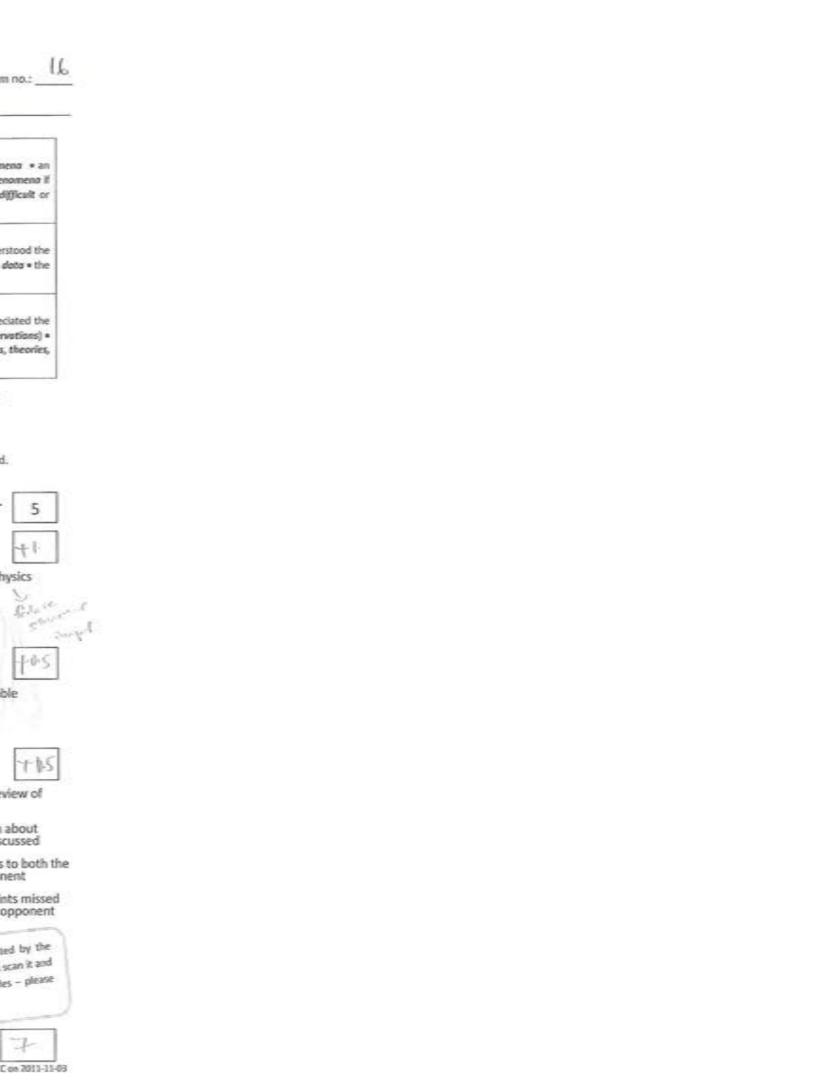
the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate appreciated and 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 ospects (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 stort with 5 points.
- · Consider the following suggestions to add to or deduct from the initial 5 paints.
- · 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.: Autolie 5	Opp.: Human 5	Rev.: Kathers 5
Alitya H	AN EIT	
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 _ 'u. J	☐ 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 Difficted and the 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter of the opposition
References, proper citations of ideas and input of others	of first of color but could	This sheet will be collected by the fight assistant, so use can scan it and fight assistant, so use can scan it and
☐ Novelty of the report	nd pull from to color	arthive your parties go
☐ Contribution to the discussion	a tener or down of weeks	do not bend
Final Grade: Reporter 5	Final Grade: Opponent 6	Final Grade: Reviewer  I after ICC feedback and approved by EC on 2011-11-09



Round: 5 Room: 3 Fight Assistants: Jan Jalimoosik ; Rojaga Thannas

		Stage 1			Stage 2	15		Stage 3			Stage 4	
Team Juror	Rep	SW I	AUS Rev	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Орр	Rev
Feng Song	7	7	6	5	5	5	4	6	9			
Andrei Klishin	9	6	6	8	5	5	5	6	8			
Volodymyr Kulinskyi	7	5	7	6	7	7	5	8	6			
Norosom Kundhikanjana	8	7	6	7	b	6	5	6	6			
Stanislav Panos	7	7	8	7	6	7	5	7	7			
Joy Tan	Ь	7	6	8	7	7	5	6	7			
Acting Team Member	Andra's Lauko	Lioba Heimbach	kevin Zhang	Michael Rogenmoser	Aditya Sothi	Noel László Raszkó	Aditya Sethi	A'bel Beregi	Kathrin Laxhuber			
Rejected Problems												
Accepted Problem	13. Mai	nelic Pen	dulum	4. Liqu	uid Film	Motor	16. We	t and I	Par K			

Signature Fight Assistant: Janu Julimousik Double-checked with Scoring Guidelines by second Fight Assistant (signature): Rojnopa Thannes

Scoring	Guid	elines

light (Round no.):	S	Room:	4	Stage:	Problem no.:	14
wor Kerry 1					792	

a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mothematics \* reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to craw 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.

Amirhossen	Chin Hot	Ann-Katarin		
Rep.: Ekahi. 5	Opp.: Liong 5	Rev.: Rass. 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 -0,5		
Quality of experimental sechnique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☑ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent     Draws attention to points missed by the reporter or the opponent		
Appropriate models, conformity of dimensions	the report  Relevance of the questions			
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion			
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can stan it and stades - please		
☐ Novelty of the report		archive your parties grant		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 7	Final Grade: Opponent 8	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2013-11-03		



# **Scoring Guidelines**

Fight (Round no.):	5	Room:	4	Stage:	Problem no.:	4
turor: Nichue	-	.0.4		ire:	26	

# 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 gother 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
appropriate 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 apponent \* 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.: Naca0 5	Rev.: Iran 5	
Physics ±3	Physics ±3	Physics ±3	
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics	
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers	
Presentation ±1 40.3	Presentation ±1	Presentation ±1 40.5	
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable	
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner	
Overall impression	Overall impression	Overall impression	
Reporter ±1 +0.3	Opponent ±1	Reviewer ±1 40-1	
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 poi of the report	nts Expresses own opinion about topics presented or discussed	
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent	
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	☐ Draws attention to points missed	
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we erades - please	
☐ Novelty of the report		archive your parties by	
☐ Contribution to the discussion		do not bend	
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer prised after IOC feedback and approved by EC on 2011-11-03	



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Scoring	191110	ennes
Section	00000	0111100

Fight (Round no.): _	5	Room:	4	Stage:	Pr	oblem no.: 14	
um Felicio							

a presentation of the appropriate concepts, theories and principles of the problem \* an explonation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother 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
appropriate data 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.: German 5	Opp.: Macao 5	Rev.: Iran Anir Weller Ebodi 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 6	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 guestions to both the		
☐ Appropriate models, conformity	the report + -	reporter and the opponent		
of dimensions +	☐ Relevance of the questions 4 -	Draws attention to points missed by the reporter or the opponent		
☐ Slides, on-site experiments, audio, video, as appropriate f→	☐ Contribution to the discussion ~			
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parcer or		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 7	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03		



Sco	ring	Guid	elines
	3		

Fight (R	lound no.]:	5	Rooma	4	_ Stage:	1	Problem no.: 14	
luror:	Ginve	Exv	w	Signati	ore:	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 gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw switoble 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
appropriate 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 stort 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	Орр.: Мака	5	Rev.: Iran	5	
Physics ±3	Physics ±3	0	Physics ±3	6	
→ □ Correct and relevant physics	Correct and relevant ph	nysics	☐ Correct and relevant phy	ysics	
~ ☐ Scientific approach	☐ Scientific approach	10/	☐ Scientific approach		
√□ Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers		
Presentation ±1	Presentation ±1	b	Presentation ±1	0	
Clear and understandable	☐ Clear and understandal	ble	☐ Clear and understandab	le	
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner		
Overall impression	☐ Overall impression		Overall impression		
Reporter ±1	Opponent ±1	O	Reviewer ±1	0	
─☐ Quality of experimental technique(s)	Response to the report solution	er's	Provides a thorough rev report and discussion	riew of	
☐ Structure	Shows the strong and w	veak points	Expresses own opinion a	about	
Complete Property       Complete Property       Explanation of formulae and symbols     Complete Property       Compl	Finds shortcomings or e	errors in	topics presented or discussed  Relevance of questions to both the reporter and the opponent  Draws attention to points missed by the reporter or the opponent		
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questi	ions			
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the disc	cussion			
References, proper citations of ideas and input of others			This sheet will be collected fight assistant, so we can s	can it and	
☐ Novelty of the report			archive your partial a		
☐ Contribution to the discussion			do not bend		
Final Grade: Reporter 4	Final Grade: Opponent	5 Revised	Final Grade: Reviewer	5 on 2011-11-03	



Scoring Guidelines Fight (Round no.): 5 Room: 4 Stage: 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 gother 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 apparent challenged the reporter's understanding of the presented concepts, theories and principles \* the apparent understood the appropriate mathematics presented • the apponent 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 mothematics used by the reporter and the apponent
- · 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 paints.
- 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	+95
Correct and relevant physics	Correct and relevant p	hysics	Correct and relevant ph	ysics
Scientific approach	☐ Scientific approach		☐ Scientific approach	
☑ Validity of conclusions	☐ Validity of conclusions	: II.	Walidity of conclusions	
Accurate answers	☐ Accurate answers		☐ Accurate answers	11
Presentation ±1	Presentation ±1	-0,5	Presentation ±1	
☐ Clear and understandable	Clear and understanda	able	☐ Clear and understandal	ole
☐ Appropriate manner	Appropriate manner		☐ Appropriate manner	
Overall impression	Overall impression		Overall impression	
Reporter ±1 -1	Opponent ±1	-91	Reviewer ±1	-0.5
Quality of experimental technique(s)	Response to the repor solution	ter's	Provides a thorough re- report and discussion	view of
☐ Structure	Shows the strong and of the report	weak points	Expresses own opinion topics presented or disc	about
Explanation of formulae and symbols	Finds shortcomings or	errors in	Relevance of questions reporter and the oppor	to both the
Appropriate models, conformity	the report		<b>A</b> /	
/ of dimensions	☐ Relevance of the ques	tions	Draws attention to points missed by the reporter or the opponent	
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the di	scussion		-
References, proper citations of ideas and input of others			This sheet will be collect fight assistant, so we can:	ed by the
☐ Novelty of the report			archive your parties g	is - pecare
☐ Contribution to the discussion			do not bend	المناصد
Final Grade: Reporter	Final Grade: Opponent	4	Final Grade: Reviewer	5 00 2011-11-03



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Fight (Round no.): 5	Room: 4	Stage:	7 Problem no.:	:
uror. D. Keller	Signati	ure: 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
appropriate 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.: Macao 5	Rev.: 1/an 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 symbols	of the report  Finds shortcomings or errors in	topics presented or discussed  Relevance of questions to both the		
_ 3	the report	reporter and the opponent		
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent		
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and sight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties grant		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03		



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ight (Round no.):	5	Room:	4	Stage:	2	Problem no.:	5
unc O Ke						Elle	

\* 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:

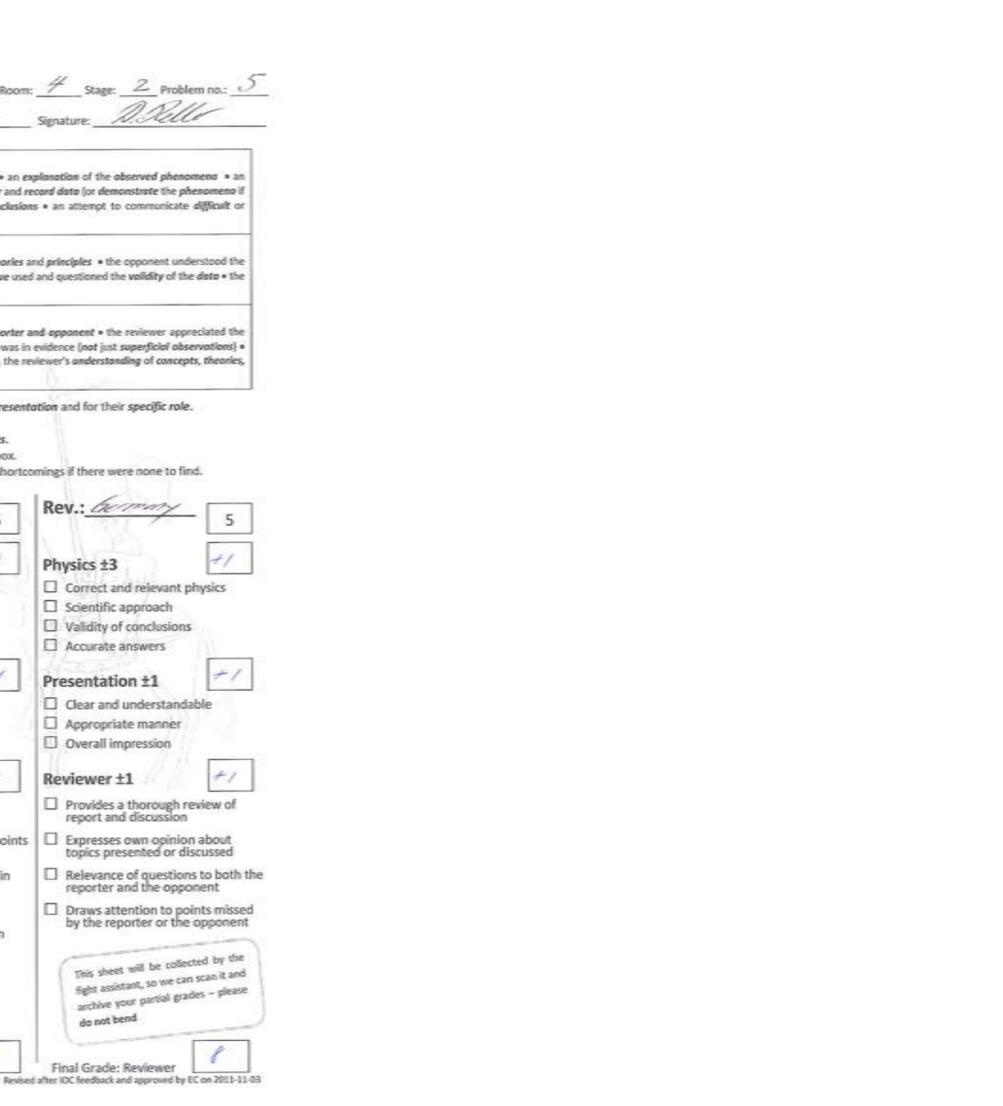
\* the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 abservations) + 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.: Mecac	Opp.:	Rev.: hemmy 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 poin	ts Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conform of dimensions</li> </ul>	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, a video, as appropriate	audio, Contribution to the discussion	by the reporter or the opponent
References, proper citations ideas and input of others	of	This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report		archive your pareas a
☐ Contribution to the discussion	on.	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer



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Fight (Round no.):	5	Room:	4	Stage:	2	Problem	no.: 5
Juron Golce	laus	lu_	Signatu	re: A	6	Ly	_

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

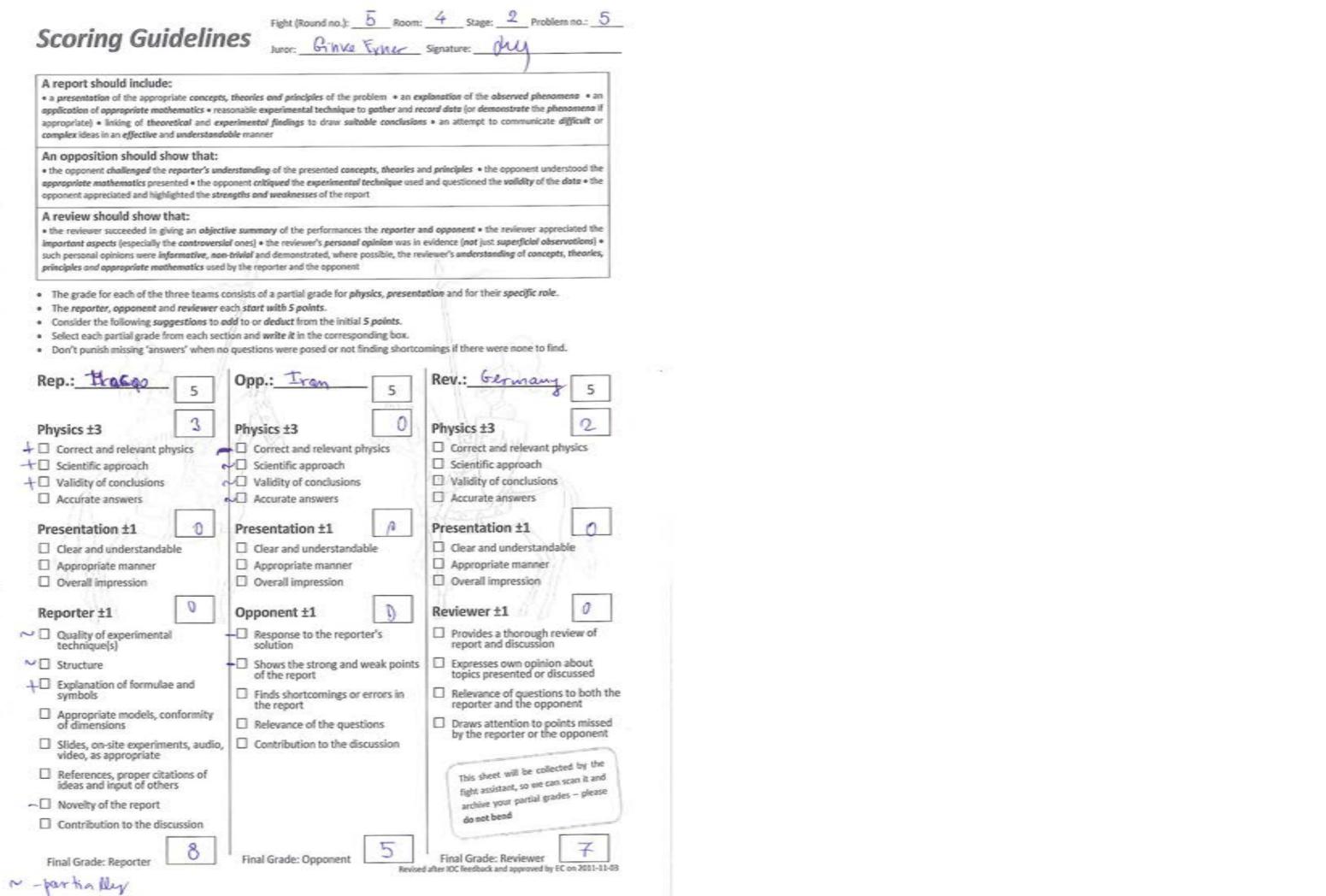
the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate appreciated and 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 apponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- . The reporter, apponent 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 purish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: 1980 5	Opp.: Orcau 5	Rev.: Gerca day 5		
Physics ±3	Physics ±3	Physics ±3 +0,5		
☐ Correct and relevant physics	Correct and relevant physics	Correct and relevant physics		
Scientific approach	CX 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 -q T	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent		
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent		
D. References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and		
☐ Novelty of the report		archive your partial p		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer  f after IOC feedback and approved by EC on 2011-11-03		



Scoring Guidelines	Fight (Round no.): 5 Room: 4 Stage: 2 Problem no.: 1
application of appropriate mathematics * reasonable	es and principles of the problem * an explanation of the abserved phenomena * an experimental technique to gother and record data (or demonstrate the phenomena if tall findings to draw suitable conclusions * an attempt to communicate difficult or oner
	fing of the presented concepts, theories and principles • the opponent understood the critiqued the experimental technique used and questioned the validity of the data • the and weaknesses of the report
important aspects (especially the controversiol ones)	many of the performances the reporter and opponent • the reviewer appreciated the  • the reviewer's personal opinion was in evidence (not just superficial observations)  and demonstrated, where possible, the reviewer's understanding of concepts, theories  reporter and the opponent
The reporter, opponent and reviewer each store Consider the following suggestions to odd to o Select each partial grade from each section and	or deduct from the initial 5 points.
Rep.: Traceo 5 Op	p.: Iran 5 Rev.: Germany 5



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ight (Round no.):	5	Room:	4	Stage:	2	Probl	em no.:	3	
- Felick					-			d	

a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother 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
apponent 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 apponent
- · 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 stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Macao 5	Opp.: (YG N Yasamin Masum 5	Rev.: Germany 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics ~	☐ Correct and relevant physics+ ¬	☐ Correct and relevant physics +		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable+	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner ~	☐ Appropriate manner		
Overall impression	☐ Overall impression	Overall impression		
Reporter ±1 -0,5	Opponent ±1 -0.1	Reviewer ±1 + 1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion 4		
☐ Structure —	☐ Shows the strong and weak points	☐ Expresses own opinion about 1		
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 +	reporter and the opponent + +		
of dimensions	☐ Relevance of the questions † ~	Draws attention to points missed by the reporter or the opponent		
<ul> <li>Slides, on-site experiments, audio, video, as appropriate <sup>4</sup></li> </ul>	☐ Contribution to the discussion +			
References, proper citations of ideas and input of others +		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, and evades – please.		
☐ Novelty of the report		archive your parties a		
☐ Contribution to the discussion +		do not bend		
Final Grade: Reporter 3	Final Grade: Opponent 4	Final Grade: Reviewer fafter IOC feedback and approved by EC on 2011-11-08		



# Scoring Guidelines

Fight (R)	ound no.):	5 Roor	nc 4 Star	ge: 2	Problem no.: 5	
lunne	Michae	South	Signature:	1	Problem no:	

# A report should include:

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

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



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Fight (Ro	und no.):	5	Room:	4	Stage:	2	Problem no.:	5	
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother 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
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 the opponent understood the appropriate mathematics presented
 the opponent critiqued the experimental technique used and questioned the validity of the data
 the opponent appreciated and highlighted the strengths and weaknesses of the report

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- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Sina Karting 5	Opp.: Yasama Massami 5	Rev.: Jingyi Yie 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	Expresses own opinion about topics presented or discussed
☐ Explanation of formulae and	of the report	Relevance of guestions to both the
symbols	☐ Finds shortcomings or errors in the report.	reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
□ Novelty of the report		archive your parties are
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer 5



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Fight (F	Round no.):	5	Room:	4	Stage:	3	Problem no.:	6
Juror:	GinKa	Exm	w	Signatu	ne:	dy	c.	

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 gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or
complex ideas in an effective and understandable manner

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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
apponent appreciated and highlighted the strengths and weaknesses of the report.

#### A review should show that:

• the reviewer succeeded in giving an objective summory of the performances the reporter and apparent • 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 stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Iran	5	Opp.: H0	- 5	Rev.:€	5	
Physics ±3	0	Physics ±3	0	Physics ±3	0	
☐ Correct and relevant phys	sics	Correct and relevant p	hysics	Correct and relevant ph	nysics	
☐ Scientific approach		☐ Scientific approach		☐ Scientific approach		
☐ Validity of conclusions		☐ Validity of conclusions		☐ Validity of conclusions		
☐ Accurate answers	170	☐ Accurate answers		☐ Accurate answers		
Presentation ±1	0	Presentation ±1	0	Presentation ±1	O	
☐ Clear and understandable		☐ Clear and understanda	ble	☐ Clear and understandal	ole	
☐ Appropriate manner		☐ Appropriate manner		☐ Appropriate manner		
Overall impression		Overall impression		☐ Overall impression		
Reporter ±1	Ь	Opponent ±1	0	Reviewer ±1	6	
Quality of experimental technique(s)		Response to the report solution	ter's	Provides a thorough review of report and discussion		
☐ Structure		☐ Shows the strong and	weak points	Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae a symbols</li> </ul>	and	of the report  Finds shortcomings or	errors in	☐ Relevance of guestions to both the		
☐ Appropriate models, conf	formity	the report		reporter and the opponent		
of dimensions		Relevance of the quest	tions	Draws attention to points missed by the reporter or the opponent		
<ul> <li>Slides, on-site experiment video, as appropriate</li> </ul>	<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>		scussion			
References, proper citations of ideas and input of others		This sheet will be collected by fight assistant, so we can scan it				
☐ Novelty of the report				archive your partial pro-	S - press	
☐ Contribution to the discus	ssion			do not bend		
Final Grade: Reporter	5	Final Grade: Opponent	5 Revised	Final Grade: Reviewer	5 00 2011-11-68	



# Scoring Guidelines

Fight (Round no.): 5 Room: 4 Stage: 3 Problem no.: 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 gother 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 contraversial 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.: nau 5	Opp.: Genay 5	Rev.: Maleo 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	C Appropriate manner	Appropriate manner		
☐ Overall impression	Overall impression	Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1 // +95		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent  Draws attention to points missed		
Appropriate models, conformity of dimensions	Relevance of the questions			
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		archive your parties a		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03		



# **Scoring Guidelines**

Fight (Round no.): 5	Room:	4	Stage: 3	Problem no.:	6
uror: D. Kelle		Signatu	ire //	elle	_

#### 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 for 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
apponent appreciated and highlighted the strengths and weaknesses of the report

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  such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
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Rep.:	Opp.:	Re	V.: Macao	5	
Physics ±3	Physics ±3	Phy	rsics ±3	0	
☐ Correct and relevant physics	☐ Correct and relevant physics	0	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	0	Accurate answers	M	
Presentation ±1	Presentation ±1 /	/ Pre	sentation ±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 6	Opponent ±1 /	/ Rev	riewer ±1	0	
Quality of experimental technique(s)	Response to the reporter's solution		Provides a thorough review of report and discussion     Expresses own opinion about topics presented or discussed		
☐ Structure	Shows the strong and weak	points 🗆			
Explanation of formulae and symbols	of the report  Finds shortcomings or errors in		☐ Relevance of questions to both the		
☐ Appropriate models, conformity	the report	100	reporter and the oppo		
of dimensions	☐ Relevance of the questions	l u	Draws attention to po by the reporter or the	opponent	
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	Contribution to the discussion	on		-	
References, proper citations of ideas and input of others		1 (	This sheet will be collect fight assistant, so we can	scan it and	
☐ Novelty of the report		- 10	archive your parous pre-	965 - P	
☐ Contribution to the discussion			do not bend		
Final Grade: Reporter	Final Grade: Opponent	7 Fir	nal Grade: Reviewer X feedback and approved by I	6 Con 2011-11-03	



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Fight (Round no.):	5	Room:	4	Stage:	3	Problem no.:	6
luror: Kem t						13	

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 gother and record data (or demonstrate the phenomena if appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or complex ideas in an effective and understandable manner

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Rep.: Ahrzal Naghdibak: 5	Opp.: Junes Language 5	Rev.: Philip No dorev 5
Physics ±3	Physics ±3	Physics ±3 Macao
☐ Correct and relevant physics	☐ Correct and relevant physics	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties or
☐ Contribution to the discussion	(4)	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  Abor IOC Sordback and approved by EC on 2011-11-01

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Fight (Round no.):	0	Room:	+	Stage:	2	_ Problem no.:	10
wor Michael I	- 5	-th	Signat	ure: "	/	11/1	1

# A report should include:

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Rep.: Iran 5	Opp.: German- 5	Rev.: Macao 5
Physics ±3	Physics ±3	Physics ±3 -0.5
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +	Presentation ±1 0-5	Presentation ±1 -0.5
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 0.5	Opponent ±1 0.5	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archise your paymen by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 7	Final Grade: Opponent 6	Final Grade: Reviewer di after IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.):	5	Room:	9	Stage:	3	Problem no.:	6	
uror: Felici								

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

Rep.: Iran Ghazel Neghtine 5	Opp.: Germany 5	Philip Naderev 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics—_	☐ Correct and relevant physics+-	☐ Correct and relevant physics		
☐ Scientific approach —	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions 1	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1 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 0		
Quality of experimental technique(s)	Response to the reporter's solution +	Provides a thorough review of report and discussion		
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about + topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  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 use can scan it and fight assistant, so use can scan it and		
☐ Novelty of the report		archive your parties go		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer 5 statiser IOC feedback and approved by EC on 2011-11-03		



Round: \_\_\_\_\_ Room: 4 Fight Assistants: Room Minjaroen phon, Adithep Butraburi

	Stage 1			Stage 2			Stage 3		Stage 2 Stage 3 Stage 4			
Team Juror	Rep	Орр	Rev	Rep	Орр	Rev	Rep	Opp	Rev	Rep	Орр	Rev
Felicia Ullsloud	7	q	5	3	0	6	4	5	5			
Michael F. Smith	5	5	7	6	5	6	Y	Ь	0			
Kerry Parker	7	3	4	4	5	5	4	4	4			
Daniel Keller	7	6	7	5	6	8	1	7	6			
Sondu Mirel Golces	i 7	4	5	4	5	6	4	4	4			
Gjnka Exner	4	5	5	8	5	7.	5	5	5			
Acting Team Member	Ann-Kathrim Rash	Chin Hok Leong	Amidhussan Esady	Jugyi Xre	Yasquin M.	Sina Julia Hartury	Chasal Naghdibal	Jones Landgraf	Milip Nadosev L.			
Rejected Problems												
Accepted Problem	No. 14 (	Criticle of	Light.	No.5 Ti	so Ballor	ons.	No. 6 M	lagney Gili	des			

Signature Fight Assistant: Ram Phinicipenphan Double-checked with Scoring Guidelines by second Fight Assistant (signature): Add Phinicipenphan Double-checked with Scoring Guidelines by second Fight Assistant (signature):

Scoring Guidelines	Fight (Round no.): 5 Room: 5 Stage: 1 Problem no.: 1
A report should include:	

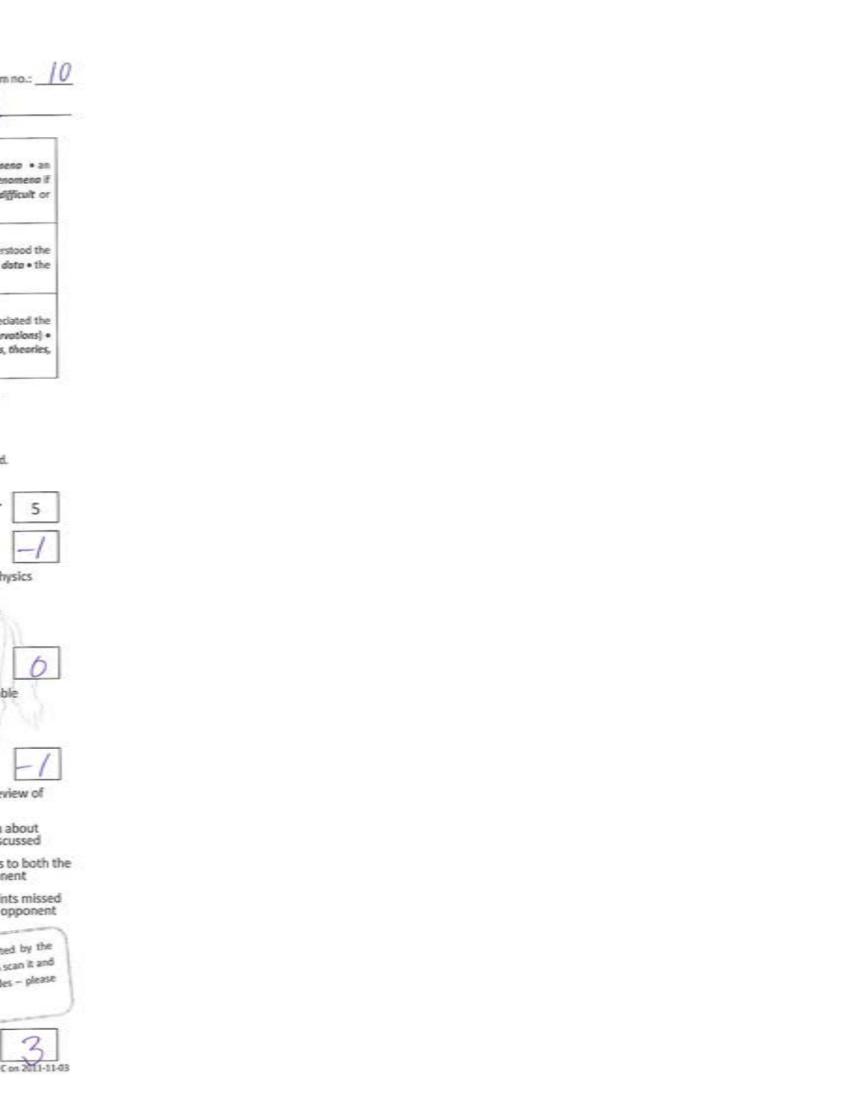
a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical 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 odd to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Poland 5	Opp.: Czech Rep 5	Rev.: Kenya 5
Physics ±3	Physics ±3 0,5	Physics ±3 —/
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 6
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 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 apponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties at
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer Safter ICC feedback and approved by EC on 2011-11-03



	0 . 1	
Scoring	Guide	lines

Fight (Round no.):	5	Room:	5	_Stage:	1	Problem no.: 10
Juror: PETER						

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

Rep.: POLAND 5	Opp.: (3.8 CH RED 5	Rev.: KENTA 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
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
☐ Appropriate models, conformity	the report	
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your paruse g
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IDC feedback and approved by EC on 2011-11-03



Fight (Round no.):	5	Rooms	5	_Stage:	Proble	em no.: _	10
luror: Dina	Ha	di-	Signatu	ire:	godi	7	

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

Rep.: Poland 5	Opp.: Clech 5	Rev.: Kenga 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 70.5	Presentation ±1	Presentation ±1 0
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 0	Opponent ±1 6	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	☐ 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 parus a
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 4	Final Grade: Opponent 5	Final Grade: Reviewer 5



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Fight (Ro	ound no.):	5_	Room:	5	_Stag	ye:	Problem	no.: _	
Juror:	M.H.	Kwen		Signatu	re: _	3/1	my		_

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

# An opposition should show that:

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

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

Rep.: Radost 5	Opp.: Pasola 5	Rev.: Nathan 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 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 1	Reviewer ±1 0
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		archive your packer is
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 5 d after IOC feedback and approved by EC on 2011-11-03



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Fight (R	ound no.): 8	Room: 5 Stage:	Problem no.:
	Navit	Signature:	- f

Final Grade: Reviewer

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

#### A report should include:

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

#### An opposition should show that:

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

#### A review should show that:

Final Grade: Reporter

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
  important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
  such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
  principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- · The reporter, opponent and reviewer each stort 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. Pavla Beresora Redoct Waszkowicz Opp.: Physics ±3 Physics ±3 Physics ±3 ☐ Correct and relevant physics Correct and relevant physics Correct and relevant physics ☐ Scientific approach Scientific approach Scientific approach □ Validity of conclusions Validity of conclusions ■ Validity of conclusions Accurate answers ☐ Accurate answers Accurate answers 0 Presentation ±1 Presentation ±1 Presentation ±1 Clear and understandable Clear and understandable ☐ Clear and understandable Appropriate manner Appropriate manner ☐ Appropriate manner Overall impression □ Overall impression Overall impression Reviewer ±1 Opponent ±1 Reporter ±1 Provides a thorough review of Response to the reporter's Quality of experimental report and discussion technique(s) solution Shows the strong and weak points Expresses own opinion about ☐ Structure topics presented or discussed of the report Explanation of formulae and Relevance of guestions to both the ☐ Finds shortcomings or errors in symbols reporter and the opponent the report Appropriate models, conformity ☐ Relevance of the questions □ Draws attention to points missed of dimensions by the reporter or the opponent ☐ Slides, on-site experiments, audio, □ Contribution to the discussion video, as appropriate This sheet will be collected by the fight assistant, so we can scan it and References, proper citations of ideas and input of others archive your partial grades - please ■ Novelty of the report do not bend ☐ Contribution to the discussion

Final Grade: Opponent



# A report should include:

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

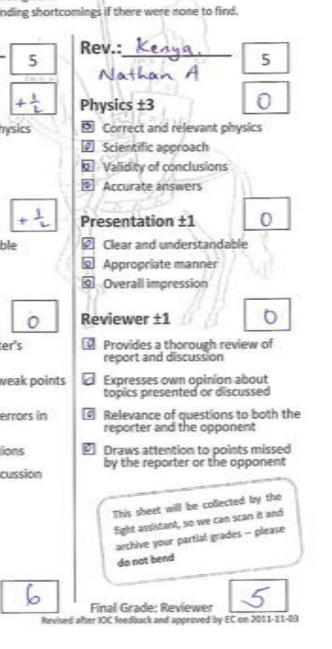
 the opponent challenged the reporter's understanding of the presented concepts, theories and principles
 the opponent understood the appropriate mathematics presented • the apponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted 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 abservations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.

<ul> <li>The reporter, opponent and review</li> </ul>		N.
	to add to or deduct from the initial 5 points.	1
	section and write it in the corresponding box.	mine of these ward water to find
Don't punish missing answers when	n no questions were posed or not finding shortco	inings if there were none to find.
Rep.: Poland 5	Opp.: Czech Reg. 5	Rev.: Kenya. 5
Radost W	Paula B	Nathan A
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 +02	Presentation ±1 + 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 + 02	Opponent ±1	Reviewer ±1 4 6 0
<ul> <li>Quality of experimental technique(s)</li> </ul>	<ul> <li>Response to the reporter's solution</li> </ul>	Provides a thorough review of report and discussion
■ Structure     ■ St	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in	Relevance of questions to both to reporter and the opponent
<ul> <li>Appropriate models, conformit of dimensions</li> </ul>	the report  Relevance of the questions	Draws attention to points missed
Elides, on-site experiments, aud video, as appropriate		by the reporter or the apponent
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 parcial s
Contribution to the discussion		do not bend

Final Grade: Opponent



Scoring	Guida	linos
SCOTTING	Guiue	mes

Fight (Round no.):	5	Room:	5	Stage:	2 Problem no.:	13
luror: King	Gin	7.6.444	Signatu	ine:		

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 gother 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
appropriate 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.

- Gal Ray	- Kanne	D. Voland -
Rep.: Oed Kap 5	Opp.: 1empa 5	Rev.: foland 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	⊕ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 +0/5
Clear and understandable	Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	☐ Overall impression	Overall impression
Reporter ±1 -0,5	Opponent ±1	Reviewer ±1 + 95
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	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
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	by the reporter or the opponent
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		anchive your parcial sy-
Contribution to the discussion		do not bend
		0
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer

Fight (R	lound no.): _	5_R00	mc_5_Stage:_2	_ Problem no.: 13
luror:	PETER	FUEL	Signature:	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 gother and record data (or demanstrate 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
appropriate 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.: CLECH LEP 5	Opp.: KENYA	5	Rev.: Poulin	5
Physics ±3	Physics ±3	-1	Physics ±3	2
☐ Correct and relevant physics	Correct and relevant physic	5	☐ Correct and relevant phys	ics
☐ Scientific approach	☐ Scientific approach	10.9	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	- 7	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	7.0	☐ Accurate answers	
Presentation ±1	Presentation ±1	0	Presentation ±1	0
☐ Clear and understandable	☐ Clear and understandable		☐ Clear and understandable	2
☐ Appropriate manner	☐ Appropriate manner	- 31	☐ Appropriate manner	
Overall impression	Overall impression		☐ Overall impression	
Reporter ±1 0	Opponent ±1	1	Reviewer ±1	1
Quality of experimental technique(s)	Response to the reporter's solution		Provides a thorough revie report and discussion	w of
☐ Structure	☐ Shows the strong and weak	points	Expresses own opinion ab topics presented or discus	out
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or erro the report	rs in	Relevance of questions to reporter and the opponer	both the
Appropriate models, conformity of dimensions	Relevance of the questions	. 1	☐ Draws attention to points	missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discuss	-	by the reporter or the op	
References, proper citations of ideas and input of others			This sheet will be collected fight assistant, so we can sca fight assistant, so we can sca	n it and
□ Novelty of the report			anthing your parvar s	
☐ Contribution to the discussion			do not bend	
Final Grade: Reporter	Final Grade: Opponent	3 Revised	Final Grade: Reviewer after IOC feedback and approved by EC or	2011-11-03



ight (Round no.):	5 Room	c_5_Stage:	Problem no.:
uror: Dina	Madi	Signature: 1, 2	adif

### 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
appropriate 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 ospects (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 mothematics 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.: Czed	5	Solmman	- 5	Rev.: Poland	5
Physics ±3	0	Physics ±3	_0.5	Physics ±3	1
☐ Correct and relevant p	hysics	☐ Correct and relevant	physics	☐ Correct and relevant pl	hysics
☐ Scientific approach		☐ Scientific approach	The	☐ Scientific approach	
☐ Validity of conclusions		☐ Validity of conclusion	15	☐ Validity of conclusions	
☐ Accurate answers		☐ Accurate answers		Accurate answers	81
Presentation ±1	0	Presentation ±1	-05	Presentation ±1	0
☐ Clear and understanda	ble	☐ Clear and understand	lable	☐ Clear and understanda	ble
☐ Appropriate manner		☐ Appropriate manner		☐ Appropriate manner	
☐ Overall impression		☐ Overall impression		☐ Overall impression	
Reporter ±1	0	Opponent ±1	0	Reviewer ±1	0
Quality of experimenta technique(s)	al	Response to the reposolution	orter's	Provides a thorough re report and discussion	view of
☐ Structure		☐ Shows the strong and	d weak points	Expresses own opinion topics presented or dis	about
<ul> <li>Explanation of formula symbols</li> </ul>	e and	of the report  Finds shortcomings of the report	r errors in	Relevance of questions reporter and the oppor	to both the
Appropriate models, of dimensions	onformity	Relevance of the que	stions	☐ Draws attention to poi	nts missed
Slides, on-site experim video, as appropriate	ents, audio,	☐ Contribution to the d	liscussion	by the reporter or the	
References, proper cit ideas and input of oth	ations of ers			This sheet will be collect fight assistant, so we can	scan it and
☐ Novelty of the report				archive your parum ar	62 - bicare
☐ Contribution to the dis	scussion			do not bend	
Final Grade: Reporter	5	Final Grade: Opponent	4 Revises	Final Grade: Reviewer I after IOC feedback and approved by E	00 2011-11-03

Scoring Guidelines	Fight (Round no.): 5 Room: 5 Stage: 2 Problem no.:
application of appropriate mathematics * reasonable	es and principles of the problem * an explanation of the observed phenomena * a experimental technique to gother and record data (or demonstrate the phenomena tal findings to draw suitable conclusions * an attempt to communicate difficult o oner
	ling of the presented concepts, theories and principles * the opponent understood the ritiqued the experimental technique used and questioned the validity of the data * the nd weaknesses of the report

# A review should show that:

the reviewer succeeded in giving an objective summary of the performances the reporter and apparent • 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.: Smmen 5	Rev.: Angar 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 poir of the report	nts Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties so
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 2001-11-03



ight (Ro	ound no.): 2 (5)	Room:	5 - Stage:	Problem no.:	M 13
	Nevit		Signature:	mynt	

#### 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 mothematics \* reasonable experimental technique to gother 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
appropriate 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 apponent
- · 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 stort 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.

Rep.: Bive Stepens	Opp.: Kenya 5	Rev.: Po And 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 0	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the light assistant, so we can scan it and
☐ Novelty of the report		archive your parces o
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 5	Final Grade: Reviewer of after IOC feedback and approved by EC on 2011-11-0



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

application of appropriate ma	priate concepts themotics • re- pretical and ex	isonable experimental technique to goth perimental findings to draw suitable o	her and reco	lanation of the observed phenomena * an ord data (or demonstrate the phenomena if * an attempt to communicate difficult or
An opposition should s		2 32 323 33	9 80	N100 0 1700 W
				d principles * the opponent understood the and questioned the validity of the data * the
		engths and weaknesses of the report		
important aspects (especially such personal opinions were in	iving an object the controversi formative, nor	al ones) • the reviewer's personal opinio	on was in e	d opponent • the reviewer appreciated the widence (not just superficial observations) • ewer's understanding of concepts, theories,
The reporter, opponent a Consider the following su Select each partial grade	nd reviewer e ggestions to a from each sec	consists of a partial grade for physics, each start with 5 points. add to or deduct from the initial 5 poi tion and write it in the corresponding o questions were posed or not finding	inės. g bax.	
Rep.: Grech Rep Pavel Steam	5	Opp.: Kenya S	5	Rev.: Poland 5
Physics ±3	- 1-	Physics ±3	12	Physics ±3
Correct and relevant p	hysics	Correct and relevant physic	s	☐ Correct and relevant physics
Scientific approach		Scientific approach	131	Scientific approach
2 Validity of conclusions	1000	Validity of conclusions	- 1	Validity of conclusions
Accurate answers	110	Accurate answers	7	Accurate answers ?_!
Presentation ±1	+ 1/2	Presentation ±1	0.2	Presentation ±1 1/2
E Clear and understanda	able	☐ Clear and understandable	17	Clear and understandable
Appropriate manner		Appropriate manner	- 40	Appropriate manner
Overall impression		- ☐ Overall impression		Q Overall impression
Reporter ±1	0	Opponent ±1	0.3	Reviewer ±1 ++1
Quality of experiment technique(s)	al	Response to the reporter's solution		Provides a thorough review of report and discussion
Structure		Shows the strong and weak	points	Expresses own opinion about
<ul> <li>Explanation of formula symbols</li> </ul>	ae and	of the report  Finds shortcomings or error	rs in	topics presented or discussed  Relevance of questions to both the
Appropriate models, conformity of dimensions the report  Relevance of the questions		8	reporter and the opponent  Draws attention to points missed	
Slides, on-site experim video, as appropriate	nents, audio,	Contribution to the discussi	ion	by the reporter or the opponent
References, proper cit ideas and input of oth	ations of ers			This sheet will be collected by the light assistant, so we can scan it and light assistant, so we can scan it and
Novelty of the report				archive your parties go
Contribution to the di	scussion			do not bend
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Fight (Round no.): 5 Room: 5 Stage: 3 Problem no.: 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 gother 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
apponent 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 stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 paints.
- . Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: Konya 5	Opp.: Poland 5	Rev.: Ged Ref 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 0/5  Clear and understandable Appropriate manner Overall impression
Reporter ±1  Quality of experimental technique(s)	Opponent ±1 -0,5  Response to the reporter's solution	Reviewer ±1
☐ Structure	- Shows the strong and weak points	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
<ul> <li>References, proper citations of ideas and input of others</li> </ul>		This sheet will be collected by the tight assistant, so we can stan it and mades - please
☐ Novelty of the report		arthive your partial grown
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 2	Final Grade: Opponent	Final Grade: Reviewer Jaher IOC feedback and approved by EC on 2011-11-03



Scoring	Guide	lines
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Fight (Round no.):	5	Room:	5	_Stage:	3	Problem no.:	1
luror: PITE 12	85	VEI !	Signatu	mes	1	12	

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 gother 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:

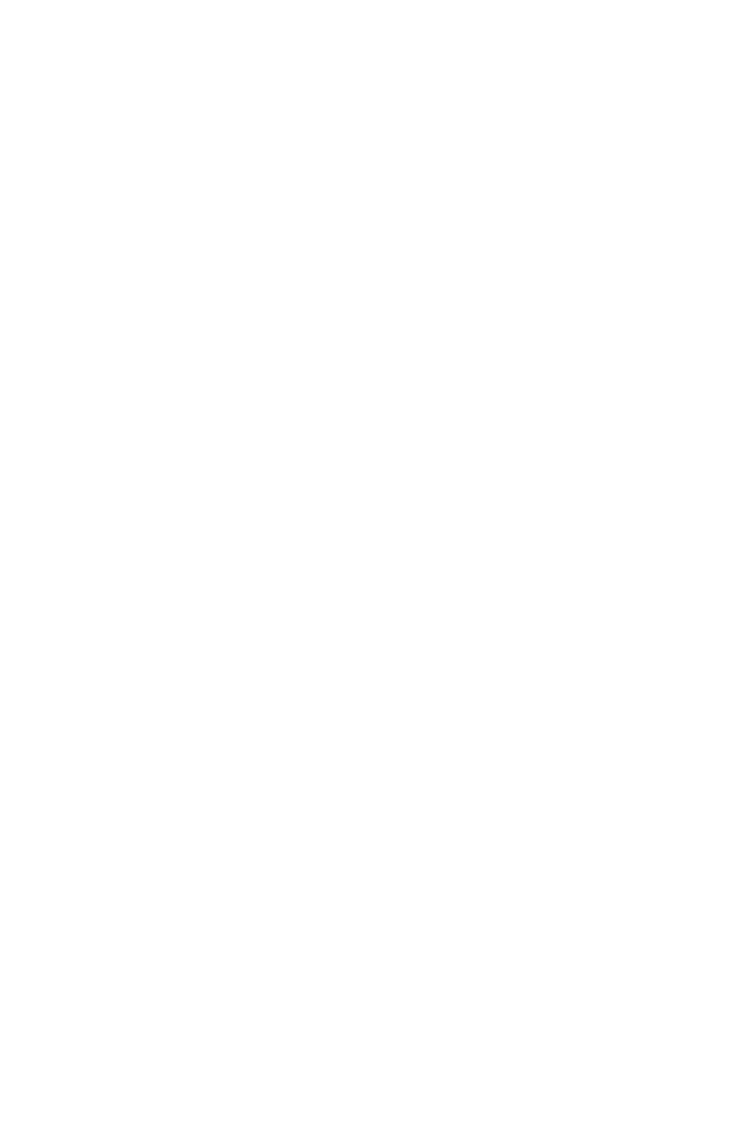
the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented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

#### A review should show that:

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

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

Rep.: KENYA 5	Opp.: POLAND	5	Rev.: Lech Rep	5
Physics ±3	Physics ±3	2	Physics ±3	1
☐ Correct and relevant physics	☐ Correct and relevant pl	hysics	☐ Correct and relevant ph	ysics
☐ Scientific approach	☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers	<u> </u>
Presentation ±1 0	Presentation ±1	1	Presentation ±1	0
☐ Clear and understandable	☐ Clear and understandal	ble	☐ Clear and understandab	ole
☐ Appropriate manner	☐ Appropriate manner		☐ Appropriate manner	
Overall impression	☐ Overall impression	☐ Overall impression		
Reporter ±1	Opponent ±1	0	Reviewer ±1	4
Quality of experimental technique(s)	Response to the report solution	ter's	Provides a thorough rev report and discussion	riew of
☐ Structure		☐ Shows the strong and weak points		about
Explanation of formulae and symbols	of the report  Finds shortcomings or the report	☐ Finds shortcomings or errors in ☐ Relevance of question		to both the
Appropriate models, conform of dimensions	ity _	Relevance of the questions		its missed
Slides, on-site experiments, a video, as appropriate	The state of the s	Contribution to the discussion		pponent
References, proper citations ideas and input of others	of		This sheet will be collected fight assistant, so we can s	
☐ Novelty of the report			archive your parties a	s - picas
☐ Contribution to the discussion	1		do not bend	
Final Grade: Reporter	Final Grade: Opponent	8 Revises	Final Grade: Reviewer dafter IOC feedback and approved by EC	1 on 2011-11-03



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Scoring	Guiae	unes

Fight (Round no.): _5	Roomc5Stage	: 3 Problem no.: 1
luror: Dina I Kad	Signature:	redig

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
compilex 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
appropriate appreciated and highlighted the strengths and weaknesses of the report

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

Rep.: Son Suke	5	Opp.: Poland	- 5	Rev.: OReh	5
Kenya	=	Radest		Pavla	
Physics ±3	0	Physics ±3	<i>el</i>	Physics ±3	村
☐ Correct and relevant phy	sics	Correct and relevant	physics	Correct and relevant ph	ysics
☐ Scientific approach		☐ Scientific approach		☐ Scientific approach	
☐ Validity of conclusions		☐ Validity of conclusion	S	☐ Validity of conclusions	
☐ Accurate answers		☐ Accurate answers		☐ Accurate answers	<u> </u>
Presentation ±1	0	Presentation ±1	0.5	Presentation ±1	0
☐ Clear and understandable	e	☐ Clear and understand	lable	☐ Clear and understandal	ole
☐ Appropriate manner		☐ Appropriate manner		☐ Appropriate manner	
☐ Overall impression		☐ Overall impression		☐ Overall impression	
Reporter ±1	0	Opponent ±1	01	Reviewer ±1	0
Quality of experimental technique(s)		Response to the reposolution	orter's	Provides a thorough re- report and discussion	view of
☐ Structure		☐ Shows the strong and	weak points	Expresses own opinion topics presented or disc	about
Explanation of formulae and symbols		of the report  Finds shortcomings or errors in		Relevance of questions reporter and the oppor	to both the
☐ Appropriate models, con	formity	the report	etione	☐ Draws attention to poir	
of dimensions		Relevance of the questions		by the reporter or the opponent	
<ul> <li>Slides, on-site experimer video, as appropriate</li> </ul>	nts, audio,	☐ Contribution to the d	liscussion		
References, proper citati ideas and input of others	ions of			This sheet will be collect fight assistant, so we can:	ed by the scan it and
☐ Novelty of the report				archive your parcial a	g - gaca
☐ Contribution to the discu	ussion			do not bend	
Final Grade: Reporter	5	Final Grade: Opponent	7 Revises	Final Grade: Reviewer	on 2011-11-09



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ight (Round no.):	5 Ro	om: 5	Stage: 3	Problem no.	
uror: M.H.	Lwon	Signatu	re 31	mny	

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 gother 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 apparent challenged the reporter's understanding of the presented concepts, theories and principles \* the apparent understood the
appropriate mathematics presented \* the apparent critiqued the experimental technique used and questioned the validity of the data \* the
apparent 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 controversiol 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.: Sou Sure 5	Opp.: Redos 5	Rev.: 200 6 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	M Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	☐ Overall impression	Overall impression
Reporter ±1 ~\	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	☐ Relevance of questions to both the
Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
Slides, on-site experiments, audio, video, as appropriate ←	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial groots
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Jahre IDC feedback and approved by EC on 2011-11-68



	Fight (Ro	ound no.): 3 (5	Room: 5	Stage:	Problem no.:	-1
Scoring Guidelines	lurne:	Naxit	Signat	ure	=7-0	

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
apponent appreciated and highlighted the strengths and weaknesses of the report

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

Rep.: Konya 5	Opp.: Poland 5	Rev.: Czheck 5			
Physics ±3	Physics ±3	Physics ±3			
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics			
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach			
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions			
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers			
Presentation ±1	Presentation ±1	Presentation ±1			
☐ Clear and understandable	☑ Clear and understandable	☐ Clear and understandable			
☐ Appropriate manner	Appropriate manner	Appropriate manner			
Overall impression	Overall impression	☐ Overall impression			
Reporter ±1	Opponent ±1	Reviewer ±1			
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion			
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed			
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in ☐ Relevance of question				
Appropriate models, conformity of dimensions	the report  Relevance of the guestions	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 fight assistant, so we can scan be and			
☐ Novelty of the report		archive your parties grant			
☐ Contribution to the discussion		do not bend			
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer I after IOC feedback and approved by EC on 2011-11-03			



Scoring Guidelines Fight (Round no.): 5 Room: 5 Stage: 3 Proble

### A report should include:

· a presentation of the appropriate concepts, theories and principles of the problem · an explanation of the observed pheno application of appropriate mathematics + reasonable experimental technique to gather and record data (or demonstrate the ph appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate 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 . appropriate mothematics presented \* the apponent critiqued the experimental technique used and questioned the validity of th 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 approximation. Important aspects (especially the controversial ones) \* the reviewer's personal apinion was in evidence (not just superficial obs such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concept principles and appropriate mathematics used by the reporter and the apponent
- 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 fin

Rep.: Kenya	Opp.: Poland 5	Rev.: Crech Rep. 5
Sousuke N	Radost W	Pavla B.
Physics ±3	Physics ±3 +1	Physics ±3 +015
Correct and relevant physics	☐ Correct and relevant physics	P Correct and relevant physics
Scientific approach		Scientific approach
El Validity of conclusions	Validity of conclusions	₩ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1 -0.2	Presentation ±1 +03	Presentation ±1 +0.7
Clear and understandable	☑ Clear and understandable	El Clear and understandable
Appropriate manner	✓ Appropriate manner	Appropriate manner
☐ Overall impression	☑ Overall impression	Overall impression
Reporter ±1 -0-3	Opponent ±1 + 0.	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
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	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 light assistant, so we can scan it and mental grades - please
Novelty of the report		archive your parcial by
☐ Contribution to the discussion		do not bend

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+0-12 lable +0-3
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6 EC on 2011-11-03

Round: \_\_\_\_\_ Room: \_\_\_\_ Fight Assistants: Wanchaloem Poursaliet

	I	Stage 1		1	Stage 2		1	Stage 3			Stage 4	
Team	Polanol	Czech Rep.	Kenya	Czech lep.	Kenya	Poland	Kenya	Poland	Czech Rep.		07-27	
Juror	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev	Rep	Opp	Rev
Kim Freimann	7	5	3	4	5	8	2	6	6			
Peter Jenei	7	5	5	5	3	8	5	8	7			
Dina Izadi	4	5	5	5	4	6	5	7	6			
Myeung Hoi Kwon	- 6	6	5	5	4	7	4	7	6			
Nant Triamnak	7	5	6	4	5	5	3	8	6			
Gavn Jennings	6	6	5	5	3	7	3	7	6			
Acting Team Member	Radost Maszkiewicz	Paula Benesova	Nathan Antrobus	Pavel Stepanek	Samman Vohra	Anna Wald	Soushke Narabu	Radost Maszkiewicz	Paula Béresova			
Rejected Problems												
Accepted Problem	(1) Sing	ing Hades of	grass	(3) Magn	the Pendu	luma	1 Pack	ing				

Signature Fight Assistant: Warchulus Passault Double-checked with Scoring Guidelines by second Fight Assistant (signature):

Fight (Round no.): 5 Room: 8 Stage: Problem no.: 11

Juror: J. BALLINGE Signature: JR B

# A report should include:

a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) \* linking of theoretical and experimental findings to draw switoble 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
appropriate 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 stort 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.: Tonwaw 5	Rev.: NGERIA 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 + 0.5
Presentation ±1  Clear and understandable  Appropriate manner  Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression	Clear and understandable  Appropriate manner  Overall impression
Reporter ±1 +0-5	Opponent ±1 -0.5	Reviewer ±1 0
Quality of experimental technique(s)	Response to the reporter's solution  Shows the strong and weak points.	Provides a thorough review of report and discussion  Expresses own opinion about
Explanation of formulae and symbols	of the report  Finds shortcomings or errors in the report	topics presented or discussed  Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions     Slides, on-site experiments, audio, video, as appropriate	Relevance of the questions Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		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		archive your partial graces do not bend
Final Grade: Reporter	Final Grade: Opponent 4	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



Scoring Guid	elines		s gislén	1 .	roblemme: 1	
A report should include:  • a presentation of the appropriate application of appropriate mathem appropriate) • linking of theoretic complex ideas in an effective and or	atics • reasonable of and experime	e experimental techn ntal findings to drav	ique to gather and re	cord data (or demonstrate t	he phenomena ii	
An opposition should show • the opponent challenged the rep appropriate mothematics presente opponent appreciated and highlight	orter's understan d • the apponent	critiqued the experie	nental technique uses	nd principles • the opponen and questioned the validity	t understood the of the data • the	
A review should show that • the reviewer succeeded in giving important aspects (especially the or such personal opinions were infamon principles and appropriate mother	an objective sur ontroversial ones rative, non-trivial	) • the reviewer's per and demonstrated, i	rsanal opinion was in where possible, the re	evidence (not just superficit	of observations) •	
The grade for each of the thre The reporter, opponent and re Consider the following sugges Select each partial grade from Don't punish missing 'answer	eviewer each st stions to odd to each section ar	art with 5 points. or deduct from the nd write it in the co	initial 5 points.	1		
Rep.: CHIPA	5 0	p: THANKA	5	Rev.: NIGERI	5	
Physics ±3  Correct and relevant phys Scientific approach Validity of conclusions Accurate answers	ics O	ysics ±3 Correct and releve Scientific approa-Validity of conclusion Accurate answer	ch isions	Physics ±3  Correct and releved Scientific approach Validity of conclusion Accurate answers	th sions	
Presentation ±1		esentation ±1	tandable	Presentation ±1	0 tandable	
Appropriate manner Overall impression	0	Appropriate man Overall impression	ner	Appropriate man Overall impression	1777	
Reporter ±1	- 3	ponent ±1	1	Reviewer ±1	ab ravious of	
Quality of experimental technique(s)		Response to the solution		report and discus	ssion	
Structure		Shows the strong of the report	g and weak points	Expresses own or topics presented	or discussed	
<ul> <li>Explanation of formulae a symbols</li> </ul>	ind	Finds shortcomir the report	ngs or errors in	Relevance of questions to both the reporter and the opponent		
<ul> <li>Appropriate models, conf of dimensions</li> </ul>	ormity	Relevance of the	questions	Draws attention by the reporter of	to points misse	
☐ Slides, on-site experiment video, as appropriate	ts, audio,	Contribution to	the discussion			
References, proper citation ideas and input of others	ons of			This sheet will be right assistant, so	collected by the we can scan it and	
☐ Novelty of the report				archive your parv	al grades – preass	
☐ Contribution to the discu	ssion			do not bend		
	8	inal Grade: Oppor	6	Final Grade: Review	5	

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ight (Round no.):	2	Room:	0	_ Stage:	/   Pr	roblem no	17
uror: KUNDR	Hell	4	Signatu	se: [l	ud	an	

### 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 mothematics \* reasonable experimental technique to gother 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
appropriate 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.: CHINH	Opp.: THALLAND 5	Rev.: DIGER A
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	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
77	Presentation ±1	Presentation 21
Clear and understandable	Clear and understandable  Appropriate manner  Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 fû5	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)  Structure  Explanation of formulae and symbols  Appropriate models, conformity	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	Provides a thorough review of report and discussion  Expresses own opinion about topics presented or discussed  Relevance of questions to both the reporter and the opponent
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 4	Final Grade: Reviewer tafter IDC feedback and approved by EC on 2011-11-03



Fight (Round no.): 5 Room: 8 Stage: Problem no.: 11

#### A report should include:

a presentation of the appropriate concepts, theories and principles of the problem \* an explonation of the abserved phenomena \* an application of appropriate mothematics \* reasonable experimental technique to gother 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 stort 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	1775	5	Rev.: Nigeria 5		
Physics ±3	Table 1	0	Physics ±3		
☐ Correct and relevant physics	Correct and relevant physics	100	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	17	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	- / 1	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	\	Accurate answers		
Presentation ±1 +0.5	Presentation ±1	0	Presentation ±1		
☐ Clear and understandable	☐ Clear and understandable	- 7	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	143	☐ Appropriate manner		
Overall impression	Overall impression		Overall impression		
Reporter ±1 +(	Opponent ±1	0	Reviewer ±1 4 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 of the report	Expresses own opinion about topics presented or discussed			
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or error	s 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 discussi	on	by the reporter or the opponent		
References, proper citations of ideas and input of others			This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report			archive your parties or		
☐ Contribution to the discussion			do not bend		
Final Grade: Reporter	Final Grade: Opponent	( Booked	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-0		



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Fight (Round no.):	5	Room:	8	Stage:	1	Problem no.:	
um L. Glose	teru	k	Sienatu	re: L	! Oi	waterul	

 a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena. application of appropriate mathematics • reasonable experimental technique to gother and record data (or demanstrate 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 understondable 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 apponent

- 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.

Rep.: China 5	Opp.: Tayland 5	Rev.: Vigenia 5
Physics ±3	Physics ±3	THE N. M. 1973
☐ 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 4	Presentation ±1 0.5	Presentation ±1 0.\$
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 0.5	Opponent ±1	S Reviewer ±1 6 0.5
Quality of experimental technique(s)	Response to the reporter's solution	<ul> <li>Provides a thorough review of report and discussion</li> </ul>
☐ Structure	Shows the strong and weak po of the report	oints Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in the report	_
<ul> <li>Appropriate models, conform of dimensions</li> </ul>	ty Relevance of the questions	☐ Draws attention to points missed
☐ Slides, on-site experiments, at video, as appropriate	udio, Contribution to the discussion	
References, proper citations of ideas and input of others	f	This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parties or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Revised after ICC feedback and approved by EC on 2011-11-0



Scoring Guideli	nes beron lan MARTCHEN	D / M	·
J	Juror: ILGA MAREICUE P	signature.	
A report should include:		-	
application of appropriate mothematics •	epts, theories and principles of the problem * an experimental technique to gother and re- experimental findings to draw suitable conclusions and able manner	card data (or demonstrate the pher	nomena il
An opposition should show that	t:		
. the opponent challenged the reporter's	understanding of the presented concepts, theories as opponent critiqued the experimental technique used	nd principles • the opponent under and questioned the volidity of the	stood the fata • the
A review should show that:			
• the reviewer succeeded in giving an ob	jective summary of the performances the reporter a	nd opponent • the reviewer apprec	dated the
important aspects (especially the control	ersial ones) • the reviewer's personal opinion was in	evidence (not just superficial obser	vations) •
such personal opinions were informative, principles and appropriate mathematics u	non-trivial and demonstrated, where possible, the re- used by the reporter and the opponent	news 5 ameroxanting or concepts,	, uncurses <sub>b</sub>
		4.00	
The grade for each of the three tear  The reporter, opponent and reviews	ns consists of a partial grade for physics, presents er each stort with 5 points.	and and for their specific role.	
	to add to or deduct from the initial 5 points.	1	
	section and write it in the corresponding box.		
Don't punish missing 'answers' whe	n no questions were posed or not finding shortco	mings if there were none to find	
China	This but toom	Pour Dige Pia	
Rep.: Kelien Lu 5	Opp.: Dian Amos 5	Rev.: Yusul Swi	N. 5
	My Fleen .	1 122	
Physics ±3 +2	Physics ±3	Physics ±3	0
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant ph	ysics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach	
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions	
☐ Accurate answers	Accurate answers	☐ Accurate answers	W.
Presentation +1	Presentation +1	WE THE	0
resentation 21	1 resemble 1	Presentation ±1	100
Clear and understandable	☐ Clear and understandable ☐ Appropriate manner	☐ Clear and understandab	ile .
Appropriate manner	Appropriate manner		
Overall impression	Overall impression	Overall impression	
Reporter ±1 -\	Opponent ±1	Reviewer ±1	0
<ul> <li>Quality of experimental technique(s)</li> </ul>	Response to the reporter's solution	Provides a thorough rev report and discussion	riew of
☐ Structure	☐ Shows the strong and weak points of the report	Expresses own opinion topics presented or disc	about

application of appropriate mot	riate concept hemotics • re retical and ex	asonable experimental technique to gother a perimental findings to draw suitable conci	an explanation of the observed phenomena * an and record data (or demonstrate the phenomena if lusions * an attempt to communicate difficult or
An opposition should st the opponent challenged the appropriate mathematics pres	how that: reporter's un ented • the op	derstanding of the presented concepts, theo	ries and principles • the opponent understood the used and questioned the volidity of the data • the
important aspects (especially t such personal opinions were in	ving an object he controvers formative, no	ial ones) • the reviewer's personal opinion w	rter and opponent • the reviewer appreciated the vas in evidence (not just superficial observations) • the reviewer's understanding of concepts, theories,
The reporter, opponent as Consider the following say Select each partial grade f	nd reviewer of gestions to rom each sec	consists of a partial grade for physics, pre each start with 5 points. add to or deduct from the initial 5 points ction and write it in the corresponding bo o questions were posed or not finding sh	
ep.: Kehan Lu	5	Opp.: Pinn Puro 5	Rev.: Yusuf Shitty 5
hysics ±3	+2	Physics ±3	Physics ±3
Correct and relevant p Scientific approach Validity of conclusions Accurate answers	197	Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
resentation ±1	0	Presentation ±1	Presentation ±1
Clear and understanda Appropriate manner Overall impression	ble	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
eporter ±1	-1	Opponent ±1	Reviewer ±1 // O
Quality of experimenta technique(s)	ıl	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure		Shows the strong and weak po of the report	ints Expresses own opinion about topics presented or discussed
Explanation of formula symbols	e and	☐ Finds shortcomings or errors in	
Appropriate models, of dimensions	onformity	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate		_	the state of the s
References, proper cit ideas and input of oth	ations of ers		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
Novelty of the report			archive your parties or
Contribution to the dis	cussion		do not bend
Final Grade: Reporter	6	Final Grade: Opponent	Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2001-11-03

Scoring	Guidelines
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ight (Round no.):	5	Rooms	8	Stage: Z	Problem no.:	10
uror: J.BAL						_

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

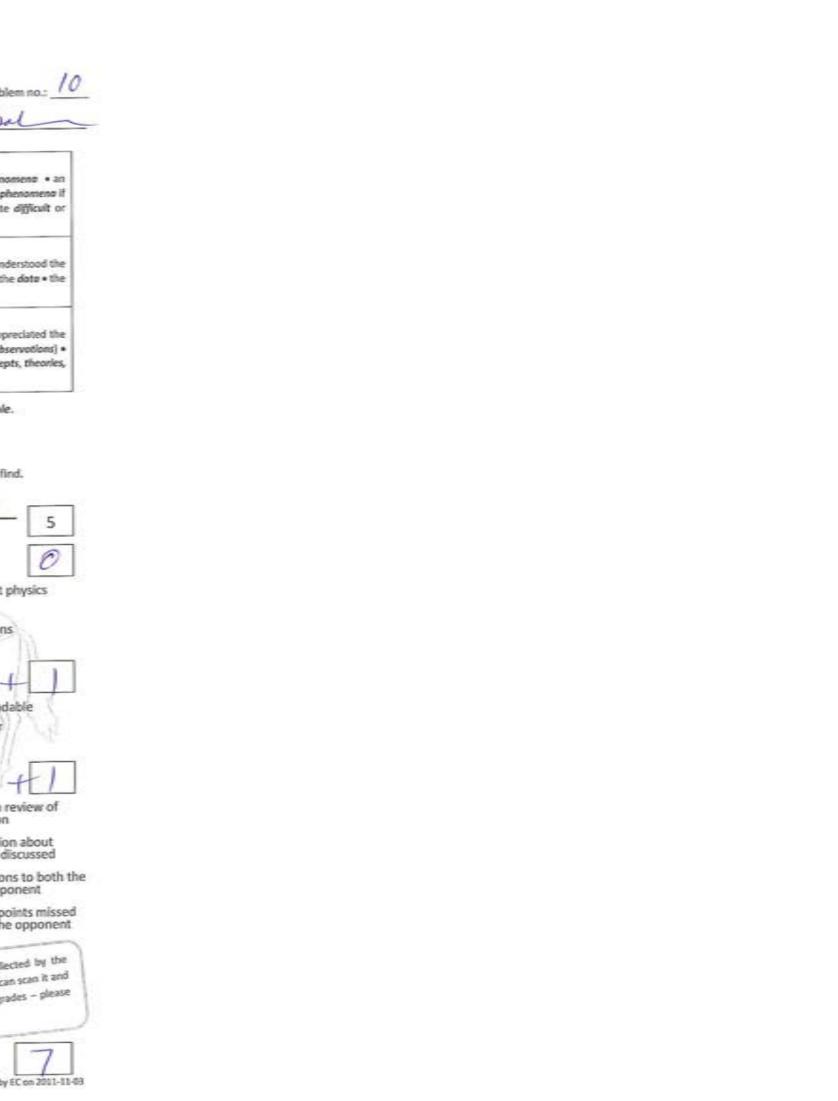
the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
opponent appreciated and highlighted 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 apparent • the reviewer appreciated the
important aspects (especially the controversial ones) • the reviewer's personal apinion 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 stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- · Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: THAILAND 5	Opp.: NISERIA 5	Rev.: CHINA 5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1
Clear and understandable Appropriate manner Overall impression	Clear and understandable Appropriate manner Overall impression	Clear and understandable Appropriate manner Overall impression
Reporter ±1  Quality of experimental technique(s)  Structure  Explanation of formulae and symbols  Appropriate models, conformity of dimensions  Slides, on-site experiments, audio, video, as appropriate	Opponent ±1  Response to the reporter's solution  Shows the strong and weak points of the report  Finds shortcomings or errors in the report  Relevance of the questions  Contribution to the discussion	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
References, proper citations of ideas and input of others  Novelty of the report  Contribution to the discussion  Final Grade: Reporter	Final Grade: Opponent 4	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 2011-11-09



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light (Round no.): _	5	Room:	8	Stage	2	Problem no.:	10
uror Lass Gr	sil	A	Sienati	inec	luc	Q.K	

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 switable conclusions \* an attempt to communicate difficult or
complex ideas in an effective and understandable manner

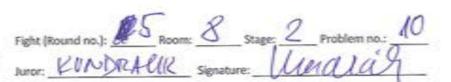
#### An opposition should show that:

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
apponent 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 ospects (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,
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- 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.: Thareau 5	Opp.: NIGERA 5	Rev.: CHINA 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	Accurate answers	☐ Accurate answers
Presentation ±1 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 O.S	Opponent ±1	Reviewer ±1 8 B.s
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	the report  Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial av
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer 7





#### A report should include:

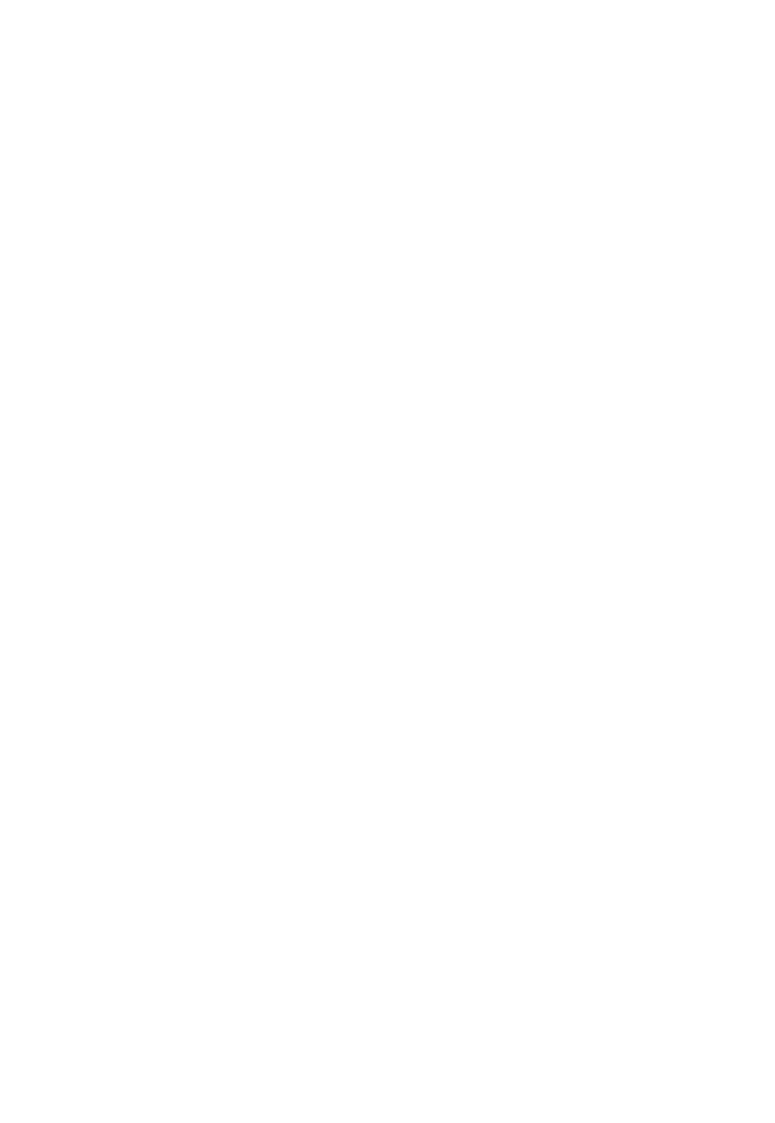
a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena.
 an appropriate mathematics.
 reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate).
 Inking of theoretical and experimental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

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the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the
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appropriate 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
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- 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 stort 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.: THAILHON 5	Opp.: N16ER (# 5	Rev.: GHTMA 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 +95	Opponent ±1 -0+	Reviewer ±1 // // O
technique(s)  Structure  Explanation of formulae and symbols	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
Appropriate models, conformity of dimensions     Slides, on-site experiments, audio, video, as appropriate	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
☐ References, proper citations of ideas and input of others ☐ Novelty of the report ☐ Contribution to the discussion		This sheet will be collected by the fight assistant, so we can stan it and archive your partial grades - please do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 3



Fight (Round no.): F Room: 8 Stage: Problem no.: 10

# 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 gother 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
opponente 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 stort 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 +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	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1 +0.5	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 4 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	☐ Finds shortcomings or errors in	Refevance of questions to both the reporter and the opponent
□ Appropriate models, conformity	the report	
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so se can scan it and fight assistant, so se can scan it and
☐ Novelty of the report		archive your parties or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer 8 safter IOC feedback and approved by EC on 2011-11-03



Fight (Round no.): 5 M Room:	8	Stage:	2 Problem no.:
	Sienatu	e: J	Quarteral

#### A report should include:

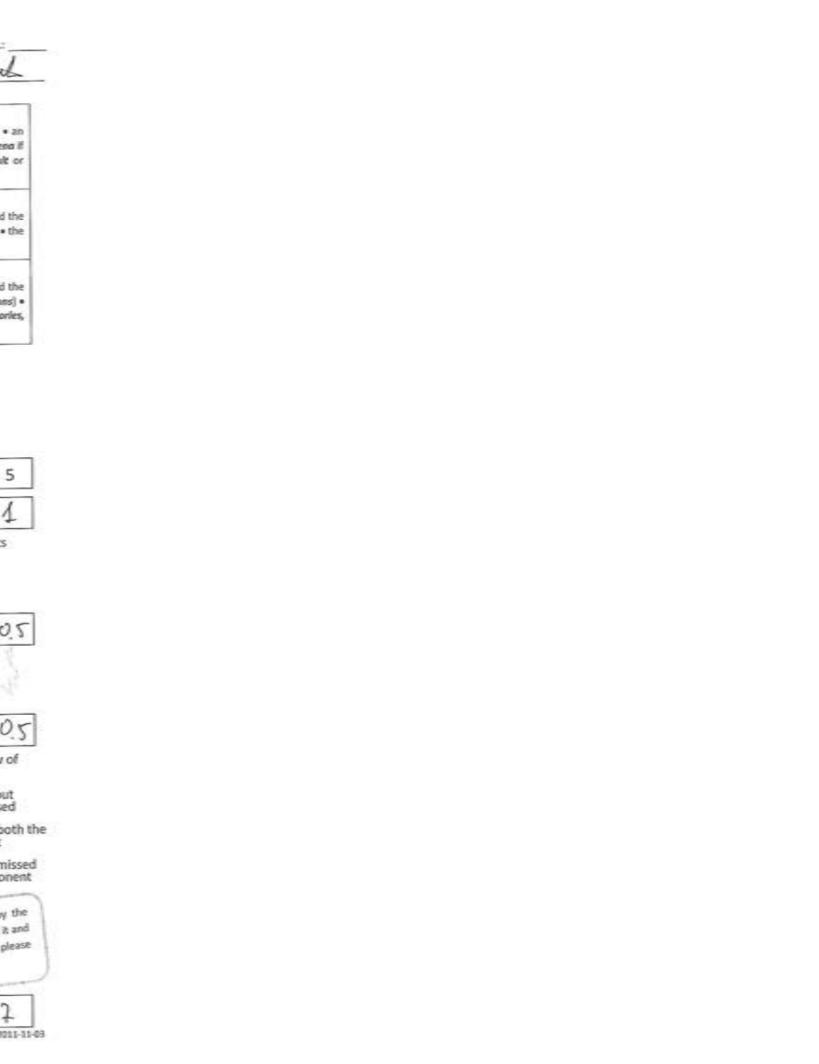
a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) \* linking of theoretical 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
appropriate 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 stort 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 +.5	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 ±15	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
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		authore Aort, bastres 9.
☐ 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 2011-11-0



Scoring Guideli	nes Juror: ly LEAR TEMELL	Stage: 2 Problem no.: 10
application of appropriate mathematics •	pts, theories and principles of the problem * an ex reasonable experimental technique to gother and re experimental findings to draw suitable conclusion adable manner	cord data (or demonstrate the phenomena if
	understanding of the presented concepts, theories as apponent critiqued the experimental technique used	
important aspects (especially the controve	ective summary of the performances the reporter a rsial ones) • the reviewer's personal opinion was in non-trivial and demonstrated, where possible, the re- sed by the reporter and the opponent	evidence (not just superficial abservations) •
<ul> <li>The reporter, opponent and reviewe</li> <li>Consider the following suggestions to</li> <li>Select each partial grade from each select</li> </ul>	o add to or deduct from the initial 5 points. ection and write it in the corresponding box. no questions were posed or not finding shortco  Opp.: Plutie 5	
☐ 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 +1	Reviewer ±1 41
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	☐ Shows the strong and weak points	Expresses own opinion about

	Fight (Round no.): 5	Room: 8 Stage: 2 Problem no.:
Scoring Guidelin	es wor less was to	well Gignature. Mr
	-	1
application of appropriate mathematics • rea	sonable experimental technique to goth perimental findings to draw suitable or	* an explanation of the observed phenomena * an ier and record data (or demonstrate the phenomena if onclusions * an attempt to communicate difficult or
	conent critiqued the experimental techni	hearies and principles • the opponent understood the ique used and questioned the validity of the data • the
important aspects (especially the controversic	al ones) • the reviewer's personal apinio -trivial and demonstrated, where possible	eporter and opponent • the reviewer appreciated the m was in evidence (not just superficial observations) • le, the reviewer's understanding of concepts, theories,
The grade for each of the three teams of the reporter, opponent and reviewer exconsider the following suggestions to a Select each partial grade from each sect Don't punish missing 'answers' when no	ach stort with 5 points. dd to or deduct from the initial 5 poi tion and write it in the corresponding	nts.
Thailand	Vigilia	Clina
Rep.: Charles 16 5	Opp.: Platie	5 Rev.: Tinhoup 5
ha masarthury thator	en Elusade -	
Physics ±3	Physics ±3	Physics ±3 +2
Correct and relevant physics	Correct and relevant physics	s Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
resentation ±1	Presentation ±1	O Presentation ±1 O
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	1 Reviewer ±1 // +1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak	points Expresses own opinion about topics presented or discussed
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or error	
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 discussi	on 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 use can scan it and
☐ Novelty of the report		archive your parties or
☐ Contribution to the discussion		do not bend
5	6	8

Scoring	Guidelines

	-		0	- 3	2		0
Fight (Round no.):	0	Room	0	Stage:	0	Problem no	D
Auror: J-6A	com	ME !	Signatu	re: o	42	- B_	

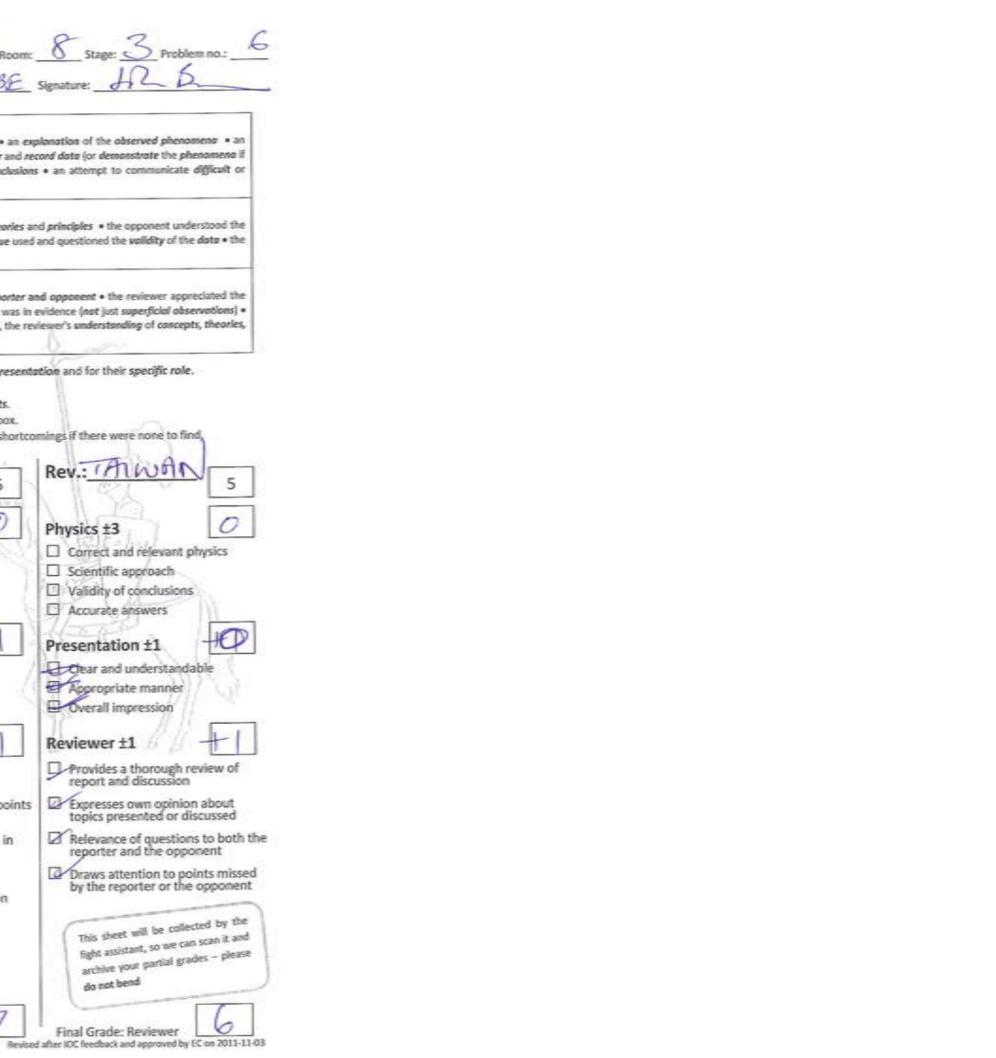
 a presentation of the appropriate concepts, theories and principles of the problem.
 an explanation of the observed phenomena. application of appropriate mothematics \* reasonable experimental technique to gother and record data (or demonstrate the phenomena if appropriate) . Inking of theoretical and 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 apponent 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 abservations) • 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 apponent
- 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.: NICEM 5	Opp.: CHINA 5	Rev.: TAWAN 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3  Correct and relevant physics  Scientific approach  Validity of conclusions	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions
Accurate answers  Presentation ±1 + 0.5	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
Quality of experimental technique(s)  Structure	Response to the reporter's solution  Shows the strong and weak points of the report	report and discussion  Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols  Appropriate models, conformity of dimensions	Finds shortcomings or errors in the report  Relevance of the questions	Relevance of questions to both the 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  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 3	Final Grade: Opponent	Final Grade: Reviewer



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ight (Round no.):	5	Room:	8	Stage:	Probleman 6	
umr LAGS G					au lie	

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 gother 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:

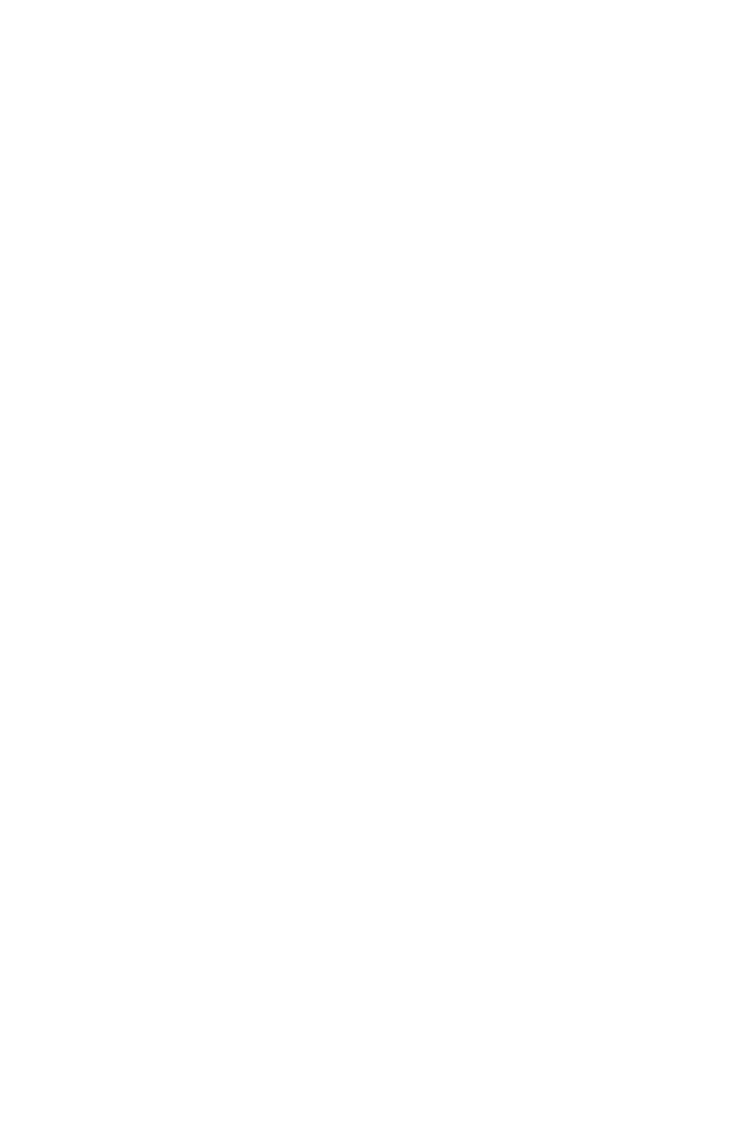
the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
apponent appreciated and highlighted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

- 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 stort 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	Орр.: СимА 5	Rev.: TOALLAND 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 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 th
☐ Appropriate models, conformity	the report	reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		arthrise your partial branch
☐ Contribution to the discussion	in the second	do not bend
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer  I after ICC feedback and approved by EC on 2011-11-0



Can	10 04 10	Cind	elines
JUL	mmu	Guia	GIIIIGS

Fight (Round no.): 5	Room:	8	Stage:	3	Problem no.:	6
turor: KUNDRAL		Signati	une:	U	udia	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 gother 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
apponent 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 opposent • 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.: NIGERIA 5	Opp.: CHINT 5	Rev.: THILAND 5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3  Correct and relevant physics Corr	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 6 +03
☐ Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols  Appropriate models, conformity	Finds shortcomings or errors in the report	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		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parsial pre-
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent 6	Final Grade: Reviewer Safter IOC feedback and approved by EC on 2011-11-03



Fight (Round no.): 5 Room: 8 Stage: 3 Problem no.: 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 gother 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 controversiol 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, apponent 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.: CHINA 5	Rev.: THAIT AND 5		
Physics ±3	Physics ±3	Physics ±3		
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	☐ Accurate answers	Accurate answers		
Presentation ±1	Presentation ±1	Presentation ±1 0		
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable		
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner		
Overall impression	Overall impression	Overall impression		
Reporter ±1 0	Opponent ±1 +	Reviewer ±1 6 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	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 reporter and the opponent		
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	the report  Relevance of the questions	Draws attention to points missed by the reporter or the opponent		
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion			
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and		
☐ Novelty of the report		arthire your partial by		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter 3	Final Grade: Opponent 8	Final Grade: Reviewer  I after IOC feedback and approved by EC on 2031-11-03		



	5		8		3	Ducklass no v	6
ight (Round no.): _ umr: L. Clou	1	Hooms		_Stage:	01	western	,

### 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 gother 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 mothematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
apponent 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 ospects (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.: Vigenia 5	Opp.: Chima 5	Rev.: huland 5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers  Presentation ±1  0.5	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
Presentation ±1 U.S	☐ Clear and understandable	Gear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±15	Opponent ±1 - 5	Reviewer ±1 0.5
☐ Structure	☐ Shows the strong and weak poi	nts
Explanation of formulae and symbols     Appropriate models, conformity of dimensions	of the report  Finds shortcomings or errors in 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 section prades — please
☐ Novelty of the report		archive your parous s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 3	Final Grade: Opponent 5	Final Grade: Reviewer 5



Fight (Round no.): 5 Room: 8 Stage: 3 Problem no.: 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 gother and record data (or demonstrate the phenomena if appropriate) . Inking 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 apponent 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 abservations) + 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 apponent

- 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 stort 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.		
Viagio	Chius,	Thailard		
Rep.: Norman 5	Opp.: Kehan Lu 5	Rev.: Panithan 5		
Abdullahi		fee Rasu naku		
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	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		arthive your parties a		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03		



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Round: Staro 4

	Stage 1			Stage 2			Stage 3			Stage 4		
Team Juror	Christo	Opp	Nigeria	Thilmd Rep		Rev	Rep	Chaina Opp	Theiland Rev	Rep	Орр	Rev
John Balcombe (drain)	6	4	5	4	4	7	3	7	6			
Lang Gislem	8	Ь	5	Б	2	9	4	7	7			
František kundmik	8	4	3	4	3	7	3	6	6			
Lat Neng dran	Ч	5	4	6	4	8	3	8	5			
Leszek Gladczuk	6	4	3	lç	b	7	3	5	5			
llya Martchenko	6	4	5	5	b	8	2	7	4			
Acting Team Member	Kehan Lu	Pian Panakapan	Went shift	Chanatip Thanasarathung	Philip Elushade.	Jiahong Y.	Ahmad Abdellahi	Kehan Ju	Panithan Jeerasu Wanakul			
Rejected Problems												
Accepted Problem	(11)			(0)			(13)					

	Sanchar		Jadgeda	
Signature Fight Assistant:	ec. Cha	Double-checked with Scoring Guidelines by second Fight Assistant (signature):	JU/U 31"	

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ght (Round no.):	0	Room: _	٦	Stage:	Problem no.: _	14
LEGNE	1	9	ignature	160	20	

a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw switoble 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
apponent 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 apparent • 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 apponent

- . 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 stort 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.: Ohogue	Opp.: lomania 5	Rev.: lussia
Heligh Eugene 3	Nowea Goles	Nilword birge low
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 40,5	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
<ul> <li>Explanation of formulae and</li> </ul>		Relevance of guestions to both the
symbols	Finds shortcomings or errors in the report	reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ 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 stan it and fight assistant, and anades – please
☐ Novelty of the report		archive your parties sive
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Lafter IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.):	5	Room	9 Stage:	/ Problem no	14
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or
complex ideas in an effective and understandable manner

### An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
apponent 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.: Pomania 5	Rev.: Russia 5
Physics ±3  ☐ Correct and relevant physics	Physics ±3  Correct and relevant physics	Physics ±3
☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Scientific approach     Validity of conclusions     Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 +0.5	Presentation ±1 + \$\dots\$	Presentation ±1 -f ]
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 FO.5	Opponent ±1 +0-5	Reviewer ±1 ( 4)
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	☐ Shows the strong and weak points of the report ☐ Finds shortcomings or errors in	Expresses own opinion about topics presented or discussed  Relevance of questions to both the
Appropriate models, conformity of dimensions	the report  Relevance of the questions	reporter and the opponent  Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your parus s
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  salter IDC feedback and approved by EC on 2011-11-03



Scoring Guideline	Fight (Round no.): 5 Room:  Juror: YF YFO	9 Stage: Problem no.: 14
application of appropriate mathematics • reas	theories and principles of the problem * an exp onable experimental technique to gother and re- erimental findings to draw suitable conclusions ale manner	cord 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 street	erstanding of the presented concepts, theories are onent critiqued the experimental technique used agths and weaknesses of the report	nd principles • the opponent understood the and questioned the validity of the data • the
A review should show that:		
important aspects (especially the controversia	e summary of the performances the reporter as I ones) • the reviewer's personal opinion was in a trivial and demonstrated, where possible, the rev by the reporter and the opponent	evidence (not just superficial observations) •
The reporter, opponent and reviewer ease Consider the following suggestions to ase Select each partial grade from each section Don't punish missing 'answers' when no UKTANI  ONLY AND CONTRACT  ONLY AND	on and write it in the corresponding box.  questions were posed or not finding shortco  ROMANIA	mings if there were none to find.
Rep.: Melnyk 5	Opp.: Anca Goldes 5	Rev.: Alko lay 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	La Accurate ariswers	The state of the s
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 # #/
☐ 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 to reporter and the opponent.
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent.
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the tight assistant, so we can scan it and
□ Novelty of the report		archive your parcer or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revises	Final Grade: Reviewer attention for the state of the stat

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y EC on 2011-11-03			

Scoring Guidelin	Fight (Round no.): 5 Room:  Juror: TKTY ANA 6.5.	Signature: 705
application of appropriate mathematics • res	s, theories and principles of the problem * an exp asonable experimental technique to gather and re- sperimental findings to draw suitable conclusions lable manner	cord data (or demonstrate the phenomena if
An opposition should show that:  • the opponent challenged the reporter's un appropriate mathematics presented • the op apponent appreciated and highlighted the str	derstanding of the presented concepts, theories as ponent critiqued the experimental technique used rengths and weaknesses of the report	nd principles • the opponent understood the and questioned the volidity of the data • the
important aspects (especially the controvers	tive summary of the performances the reporter as iol ones) • the reviewer's personal opinion was in n-trivial and demonstrated, where possible, the rev d by the reporter and the opponent	evidence (not just superficial observations) •
The reporter, opponent and reviewer of Consider the following suggestions to a Select each partial grade from each second to bon't punish missing 'answers' when not see the second to be suggested.  Rep.: 126.0466		Rev.: RUSSIA 5
Physics ±3  Correct and relevant physics	Physics ±3  ☑ Correct and relevant physics - 0 1<	Physics ±3  Correct and relevant physics
☐ Scientific approach ☐ Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions -015 ☐ Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 CS
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner - 0 25 ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 0	Opponent ±1 40 5	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
	- 7 7 7 7	57.

An opposition should show that:  • the opponent challenged the reporter's und appropriate mathematics presented • the oppopenent appreciated and highlighted the stre	ferstanding of the presented concepts, theories an ponent critiqued the experimental technique used engths and weaknesses of the report	d principles • the apponent understood the and questioned the validity of the data • the
important aspects (especially the controversi	ive summary of the performances the reporter ar oil ones) • the reviewer's personal opinion was in e •-trivial and demonstrated, where possible, the rev by the reporter and the opponent	vidence (not just superficial observations) •
<ul> <li>The reporter, opponent and reviewer e</li> <li>Consider the following suggestions to e</li> <li>Select each partial grade from each sec</li> </ul>	add to or deduct from the initial 5 points.	
Rep.: JERANE 5	Opp.: consolia 5	Rev.: RUSGIA 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics	Correct and relevant physics - 0 15	Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☑ Validity of conclusions -015	☐ Walidity of conclusions
☐ Accurate answers	Accurate answers	III Accurate answers
Presentation ±1	Presentation ±1 -0.15	Presentation ±1 + CS
☐ Clear and understandable	☐ Clear and understandable	☑ Clear and understandable
☐ Appropriate manner	Appropriate manner - 0 25	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1 0	Opponent ±1 40 5	Reviewer ±1 406 +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
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or errors in	topics presented or discussed  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 it and
☐ Novelty of the report		archive your parties and
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 5	Final Grade: Opponent 5	Final Grade: Reviewer Lafter ICC feedback and approved by EC on 2011-11-03

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Fight (Round no.):	5	Room:	9	Stage:	1	Problem no.:	14
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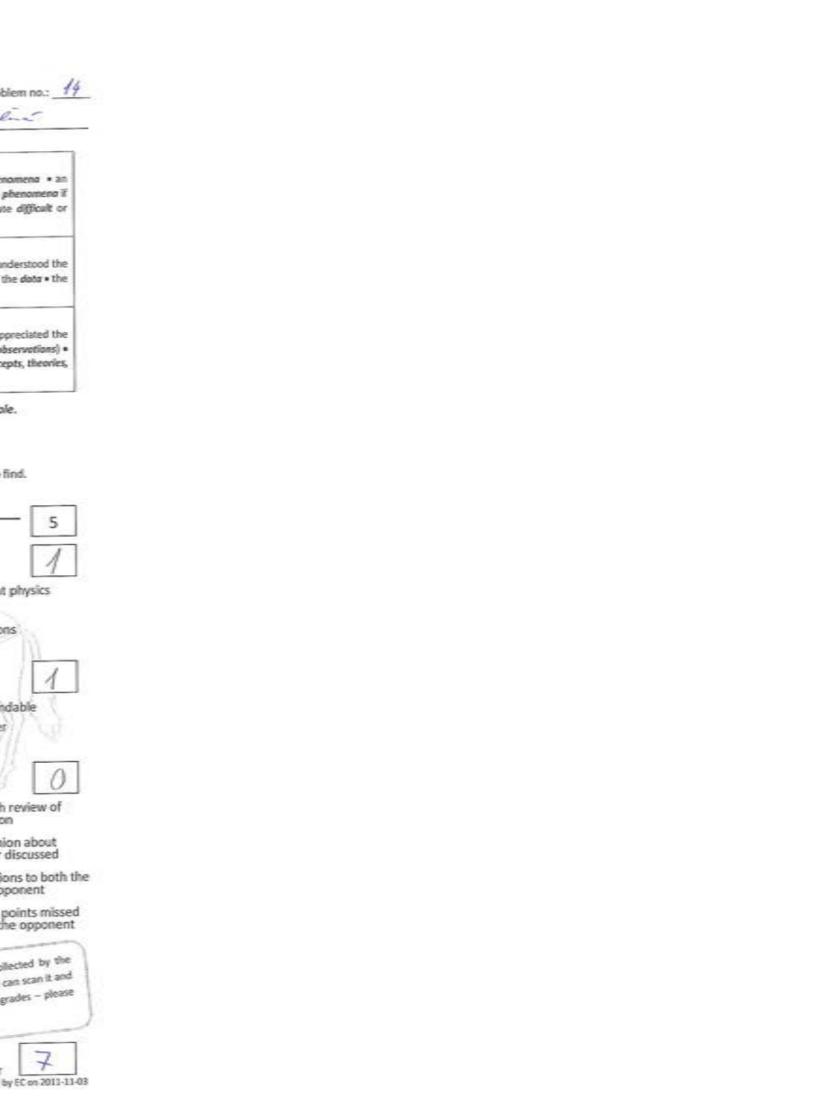
a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gather and record data (or demonstrate the phenomena if
appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or
complex ideas in an effective and understandable manner

### An opposition should show that:

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

- the reviewer succeeded in giving an objective summary of the performances the reporter and apparent 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 paints.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.: UKRAINE 5	Opp.: ROMANIA 5	Rev.: RUSSIA 5		
Physics ±3  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		
☐ Clear and understandable ☐ Appropriate manner	Clear and understandable     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		
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent		
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed		
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	by the reporter or the opponent		
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and		
☐ Novelty of the report		arthive your parties o		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 3	Final Grade: Reviewer (after IOC feedback and approved by EC on 2011-11-03		



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ight (Round no.): _	5	Room:	9	Stage:	1	Problem no.:	14
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother 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
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the

#### A review should show that:

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the
  important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) •
  such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories,
  principles and appropriate mathematics used by the reporter and the opponent
- 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.: Ulerme 5	Opp.: Ronama 5	Rev.: Russa 5
Physics ±3 white heart and relevant physics +    Correct and relevant physics +   Scientific approach	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 0	Opponent ±1	Reviewer ±1 / +0/5
Quality of experimental technique(s)	Response to the reporter's + -	Provides a thorough review of report and discussion
Structure  Explanation of formulae and symbols  Appropriate models, conformity of dimensions  Slides, on-site experiments, audio, video, as appropriate	☐ Shows the strong and weak point of the report + ☐ Finds shortcomings or errors in the report ← ☐ Relevance of the questions ☐ Contribution to the discussion	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
☐ 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 6	Final Grade- Opponent 6	Final Grade: Reviewer 7

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



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ight (Round no.):	Room:	Stage:	4	Problem no.:	U
REGUER	Sign	ature 1	rac	V	

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 gother 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
apponent appreciated and highlighted the strengths and weaknesses of the report

- the reviewer succeeded in giving an objective summary of the performances the reporter and apponent to the reviewer appreciated the
  important aspects (especially the controversial ones) the reviewer's personal opinion was in evidence (not just superficial observations) to
  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.: Romains 5	Opp: Missia 5	Rev.: Ulaine 5
Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3  Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and symbols     Appropriate models, conformity of dimensions	of the report  Finds shortcomings or errors in the report  Relevance of the questions	topics presented or discussed  Relevance of questions to both the 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 fight assistant, so we can scan it and
☐ Novelty of the report		arthive your parties gr
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer  6 safter IOC feedback and approved by EC on 2011-11-03



Fight (Round no.): _	\$5 Room:	9	Stage:	2	Problem no.	6 Mynns
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# 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 gother and record data (or demonstrate the phenomena if appropriate) . Inking 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 apponent
- 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 stort 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.

Rep.: Romania 5	Opp.: Rissia 5	Rev.: Okraine 5		
Physics ±3	Physics ±3 +0.5	Physics ±3		
☐ Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics		
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach		
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions		
☐ Accurate answers	Accurate answers	☐ Accurate answers		
Presentation ±1 +0.5	Presentation ±1	Presentation ±1 to.5		
Clear and understandable	Clear and understandable	☐ Clear and understandable		
Appropriate manner	☐ Appropriate manner	Appropriate manner		
Overall impression	Overall impression	Overall impression		
Reporter ±1 -0.5	Opponent ±1 +	Reviewer ±1 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 poir of the report	its Expresses own opinion about topics presented or discussed		
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both th reporter and the opponent		
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	☐ Draws attention to points missed		
Slides, on-site experiments, audio, video, as appropriate no exp. yelro	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 light assistant, so we can scan it and		
☐ Novelty of the report		archive your parties are		
☐ Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent 7	Final Grade: Reviewer vised after IOC feedback and approved by EC on 2011-11-0		



Scoring Guideli	nes Juros: YF YFO	Signature: Problem no.:
application of appropriate mathematics	epts, theories and principles of the problem • an ex- reasonable experimental technique to gother and re l experimental findings to draw suitable conclusion and oble manner	ecord data (or demonstrate the phenomena i
appropriate mathematics presented • the	t: understanding of the presented concepts, theories a opponent critiqued the experimental technique used strengths and weaknesses of the report	and principles • the opponent understood the data • the
important aspects (especially the controv	jective summary of the performances the reporter a ersiol ones) • the reviewer's personal opinion was in non-trivial and demonstrated, where possible, the re used by the reporter and the opponent	evidence (not just superficial observations)
The reporter, opponent and review Consider the following suggestions Select each partial grade from each	or consists of a partial grade for physics, present er each stort with 5 points. It and to or deduct from the initial 5 points. Section and write it in the corresponding box. In no questions were posed or not finding shorter than the corresponding box.	
hysics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
Scientific approach	☐ Scientific approach ☐ Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions
Validity of conclusions     Accurate answers	Accurate answers	Accurate answers
resentation ±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
Characture.	Chows the strong and weak noints	☐ Expresses own opinion about

	Fight (Round no	1. 5 B	9 8	age: Z	Proble	m no.: 6
Scoring Guidelin	es Juroc: YF	YEO	Signature:		The same	
A report should include:  • a presentation of the appropriate concepts, application of appropriate mathematics • reas appropriate) • linking of theoretical and expromplex ideas in an effective and understandor	onable experimental techni enimental findings to drav	ique to gother a	nd record data (or	demonstrat	e the phe	snomena ii
An opposition should show that: the opponent challenged the reporter's unden appropriate mathematics presented • the opponent appreciated and highlighted the street	onent critiqued the experim	ental technique	les and principles used and question	• the opponed the valid	ent unde	rstood the data • the
A review should show that:  the reviewer succeeded in giving an objective important aspects (especially the controversion such personal opinions were informative, non-principles and appropriate mathematics used in the second control of the second control open and the second control	l ones) • the reviewer's per trivial and demonstrated, v	sonal opinion w here possible, ti	as in evidence (no	t just superfli	cial obse	rvations) *
The grade for each of the three teams or The reporter, opponent and reviewer each Consider the following suggestions to or Select each partial grade from each section bon't punish missing 'answers' when no ROMANIA.	ch start with 5 points. Id to or deduct from the on and write it in the cor	initial 5 points. responding bo		re were nor UKrau		
hysics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3  Correct and releved Scientific approach Validity of conclusion Accurate answers	ih sions	☐ Scien	±3 ect and rek dific appro ity of conc rate answe	ach lusions	+ 1/2 hysics
resentation ±1  Clear and understandable Appropriate manner Overall impression	Presentation ±1  Clear and underst  Appropriate man  Overall impression	ner	☐ Clear	tation ±	rstanda enner	1) ble
Reporter ±1 O  Quality of experimental technique(s)	Opponent ±1	+ /	Review	ver ±1 /	ough re	+ 1/2 view of
Structure  Explanation of formulae and symbols	☐ Shows the strong of the report ☐ Finds shortcomin		ints	esses own s presente	opinion d or dis	about cussed to both the
Appropriate models, conformity of dimensions	the report  Relevance of the	questions	repo	rter and th	e oppo n to poi	nent nts missed
Slides, on-site experiments, audio, video, as appropriate  References, proper citations of ideas and input of others  Novelty of the report	☐ Contribution to ti	ne discussion	figh and	sheet will be t assistant, so hive your pa	be collect o see can riial grad	sed by the scan it and les – please
Contribution to the discussion Final Grade: Reporter	Final Grade: Oppon	. B	7	not bend	unae	7

Fight (Round no.): _	5	_Room:	9	Stag	2	Problem no.:	6
Juror: TATYAN	A 6	.5.	Signatur	e:	105		

## 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 gother 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
apponent 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 stort with 5 points.
- . Consider the following suggestions to add to or deduct from the initial 5 paints.
- · 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.: sonavia	Opp.: BASSIA 5	Rev.: OKEMAN 5
Physics ±3	Physics ±3	Physics ±3
○ Correct and relevant physics → 0 ¾		
☐ Scientific approach	Scientific approach + 0,5	☑ Scientific approach ☑ Validity of conclusions
☐ Validity of conclusions  M Accurate answers + 0.1€	✓ Validity of conclusions †0 २/5 ✓ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1 +0.5
☐ Clear and understandable	☐ Clear and understandable	Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	Appropriate manner
☐ Overall impression	Overall impression	Overall impression
Reporter ±1 -0.5	Opponent ±1	Reviewer ±1 / / 0.5
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of geport and discussion
☐ Structure	Shows the strong and weak points	Expresses own opinion about + 0.25
Explanation of formulae and symbols	of the report AND THEORY Finds shortcomings or errors in	Relevance of questions to both the +0 15 reporter and the opponent
Appropriate models, conformity of dimensions	the report X  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 metal grades – please
□ Novelty of the report		archive your parties of
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer d after IOC feedback and approved by EC on 2011-11-03



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Fight (Round no.):	5	Rooma	9	Stage:	2	Problem no.:	6	
ore Zurana	-	5				_		

a presentation of the appropriate concepts, theories and principles of the problem \* an explonation 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
appropriate 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 apponent
- . 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 stort with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- . Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

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



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Scoring	GUINE	Inps
Scoring	CHINCI	111100

ight (Round no.): _	5	Room:	Cy Stage:	2	Problem no.:	6
Mattie						

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 gother 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
appropriate appreciated and highlighted the strengths and weaknesses of the report

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

Rep.: Romania 5	Opp.: Rusia 5	Rev.: Uhmhe 5
Physics ±3 +2	Physics ±3 +2	Physics ±3 + L5
☐ Correct and relevant physics 4	Correct and relevant physics 4	☐ 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 // / -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 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 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 8	Final Grade: Reviewer Jaher IOC feedback and approved by EC on 2001-11-03



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ight (Round no.):	Room:	9 50	3	Problem no.:	13
wor LEGNER		Signature:	ha	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 stort 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.: Mss ia 5	Opp.: Uhren 5	Rev.: Comanie 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 A A 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
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and fight assistant, so we can scan it and
☐ Novelty of the report		archive your partial by
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

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ight (Round no.):	5	Room	9	Stage:	Problem no	B
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an
application of appropriate mathematics \* reasonable experimental technique to gother 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
appropriate 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, apponent 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.: thraine 5	Rev.: Romana 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 ±0.45	Presentation ±1 40.5	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 +0.5	Reviewer ±1 // / +1		
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion		
☐ Structure	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed		
Explanation of formulae and symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent  Draws attention to points missed		
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions			
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 it and		
☐ Novelty of the report		archive your parties or		
Contribution to the discussion		do not bend		
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer		



	Fight (Round no.): 5	Room: 9 Stage: 3 Problem no.: 13
Scoring Guidelin	es Juron: 1/E /EO	Signature:
application of appropriate mathematics • ress	onable experimental technique to goth enimental findings to draw suitable co	an explanation of the observed phenomena * an er and record data (or demonstrate the phenomena if onclusions * an attempt to communicate difficult or
An opposition should show that:  • the opponent challenged the reporter's unde appropriate mathematics presented • the oppopponent appreciated and highlighted the street	onent critiqued the experimental techni-	heories and principles • the opponent understood the ique used and questioned the validity of the data • the
A review should show that:		
important aspects (especially the controversion	fones) • the reviewer's personal opinio trivial and demonstrated, where possible	eporter and opponent • the reviewer appreciated the or was in evidence (not just superficial observations) • le, the reviewer's understanding of concepts, theories,
The grade for each of the three teams or The reporter, opponent and reviewer each Consider the following suggestions to or Select each partial grade from each section to be constant missing 'answers' when no Roope id.	ch start with 5 points. Ad to or deduct from the initial 5 pair ion and write it in the corresponding	nts.
Rep.: Wfalit	Opp.: de/m/k	5 Rev.: Dimitrix 5
Physics ±3  Correct and relevant physics	Physics ±3	Physics ±3  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
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	O 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
<ul> <li>Explanation of formulae and symbols</li> </ul>	of the report  Finds shortcomings or error the report	-
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	Relevance of the questions	
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discussi	ion
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades — please
☐ Novelty of the report		archive your parsial or
Contribution to the discussion	1570	do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-0

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ponent • the reviewer appreciated the		
ce (not just superficial observations) •		
's understanding of concepts, theories,		
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and for their specific role		
and for their specific role.		
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s if there were none to find.		
Romanja		
V. Pimitrix		
Horik 5		
nucleo +2		
ysics ±3		
Correct and relevant physics		
Scientific approach		
Validity of conclusions		
Accurate answers		
Accurate answers		
esentation ±1		
Clear and understandable		
Appropriate manner		
Overall impression		
Overall impression		
12 12 11		
wiewer ±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		
This sheet will be conecutor  This s		
fight assistant, so we con a archive your partial grades – please		
arctive your		
do not bend		
D		
inal Candor Barriannas		
inal Grade: Reviewer US 10C feedback and approved by EC on 2011-11-03		

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Fight (Round no.):	5	Room:	9	Stage:	3	Problem no.:	13
luror: TAT-/401					-		

a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an appropriate mathematics \* reasonable experimental technique to gother and record data (or demanstrate 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
appropriate 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 apponent
- · 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 stort 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.: possiA 5	Opp.: VEANNE 5	Rev.: BOMENIA 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
∇alidity 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 +05	Opponent ±1	Reviewer ±1 // +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
<ul> <li>Explanation of formulae and symbols</li> </ul>	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the questions	☐ Draws attention to points missed
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ 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 light assistant, so we can scan it and light assistant, so we can scan it and
□ Novelty of the report	1	anthive your payour or
☐ Contribution to the discussion		do not bend
Final Grade: Reporter 6	Final Grade: Opponent 5	Final Grade: Reviewer 6



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ight (Round no.):	5	Room:	9	Stage:	3	Problem no.:	13	
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a presentation of the appropriate concepts, theories and principles of the problem \* an explanation of the observed phenomena \* an application of appropriate mathematics \* reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) \* linking of theoretical and experimental findings to draw suitable conclusions \* an attempt to communicate difficult or complex ideas in an effective and understandable manner

# An opposition should show that:

the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
appropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
appropriate 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, apparent 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.: Russa 5	Opp.: Ukraine 5	Rev.: Romania 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 fight assistant, so we can scan it and
☐ Novelty of the report		archive your parcer at
☐ Contribution to the discussion	344	do not bend
Final Grade: Reporter 6	Final Grade: Opponent 6	Final Grade: Reviewer I after IDC feedback and approved by EC on 2001-11-03



Scoring	Guide	lines
Jeoning	Guiuci	IIICS

ight (Round no.): _	5	Room: _	9	Stage:	3	Problem no.:	13
ma Matties							

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:

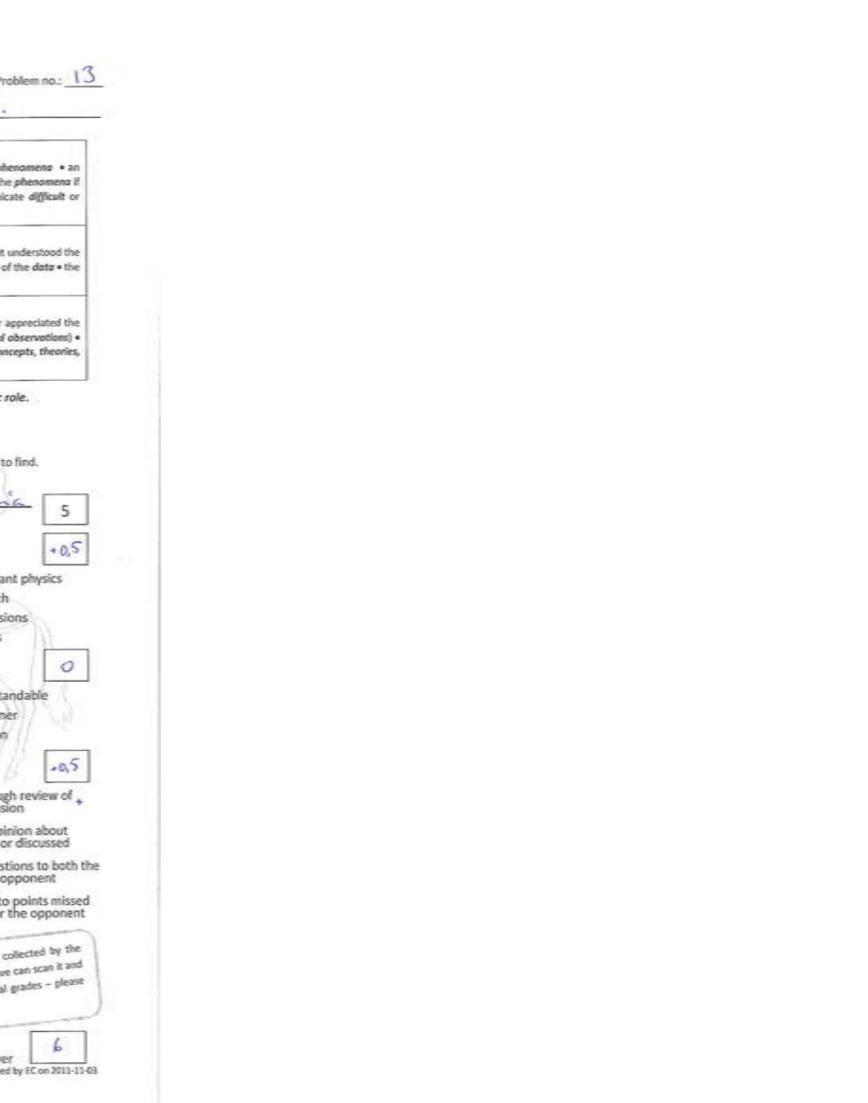
the opponent challenged the reporter's understanding of the presented concepts, theories and principles \* the opponent understood the
oppropriate mathematics presented \* the opponent critiqued the experimental technique used and questioned the validity of the data \* the
opponent appreciated and highlighted 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, apponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 paints.
- · 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.: Rusha 5	Opp.: Uhmne	5	Rev.: Romania 5				
Physics ±3	Physics ±3	+05	Physics ±3				
☐ Correct and relevant physics ↓	Correct and relevant phy	sics	☐ Correct and relevant physics				
☐ Scientific approach +	☐ Scientific approach	1	☐ Scientific approach				
☐ Validity of conclusions —	☐ Validity of conclusions	11	☐ Validity of conclusions				
☐ Accurate answers	1	☐ Accurate answers					
Presentation ±1	Presentation ±1	0	Presentation ±1				
☐ Clear and understandable ~	Clear and understandabl	le /	☐ Clear and understandable				
☐ Appropriate manner	☐ Appropriate manner	1/4	☐ Appropriate manner				
☐ Overall impression	Overall impression		Overall impression				
Reporter ±1 -0.5	Opponent ±1	+0,5	Reviewer ±1 4 4 -0,5				
Quality of experimental technique(s)	Response to the reporte solution	r's +	Provides a thorough review of + report and discussion				
☐ Structure	Shows the strong and we of the report	eak points	Expresses own opinion about topics presented or discussed				
☐ Explanation of formulae and symbols	Finds shortcomings or er the report	rrors in	Relevance of questions to both to reporter and the opponent				
<ul> <li>Appropriate models, conformity of dimensions</li> </ul>	☐ Relevance of the question	ons	☐ Draws attention to points missed by the reporter or the opponent				
<ul> <li>Slides, on-site experiments, audio, video, as appropriate</li> </ul>	☐ Contribution to the discu	ussion					
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			arthive your parties so				
☐ Contribution to the discussion			do not bend				
Final Grade: Reporter	Final Grade: Opponent	6	Final Grade: Reviewer				



Team Juror	Stage 1			Stage 2		Stage 3			Stage 4			
	Ukraine Rep	Romania Opp	Rev	Rep	Russia Opp	Ukraine Rev	Rep	Ukraine Opp	Romania Rev	Rep	Орр	Rev
Ulrike Regner cohin	6	3	6	6	7	6	8	6	6			
Pornret Wattanakasiwich	6	6	8	5	7	5	8	6	7			
Ye Yeo	5	6	7	7	8	7	5	5	7			
Tatyana Gorçalves States	5	5	7	4	7	7	6	5	6			
Zuzana Coculová	6	3	7	5	8	7	6	6	6			
Mattias Andersson	6	6	7	7	8	7	6	6	6			
Acting Team Member	Yevhen Melnyk	Anca Goldis	Nikolay Sibiyakov	Horia Magureanu	Vitalii Matiunin	Mykyta Rohovyi	Vitalii Matiunin	Mykyta Rohovyi	Horia Magureanu			
Rejected Problems												
Accepted Problem		14			6			13				