	•	
Scoring Guideli		m: Stage: Problem no.:
Scoring Guideni	Juror: Chuan Your L	Signature:
A report should include:	<u> </u>	
• a presentation of the appropriate concept	ots, theories and principles of the problem • an	explanation of the observed phenomena • an
appropriate) • linking of theoretical and e complex ideas in an effective and understan	easonable experimental technique to gather and experimental findings to draw suitable conclusion adable manner	record data (or demonstrate the phenomena if ons • an attempt to communicate difficult or
An opposition should show that:		
 the opponent challenged the reporter's u. appropriate mathematics presented • the opponent appreciated and highlighted the st 	nderstanding of the presented concepts, theories pponent critiqued the experimental technique use trengths and weaknesses of the report	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
important aspects (especially the controver.	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in on-trivial and demonstrated, where possible, the reporter and the opponent	n evidence (not just superficial observations)
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each see Don't punish missing 'answers' when r 	consists of a partial grade for <i>physics</i> , <i>presen</i> each <i>start with 5 points</i> . add to or deduct from the initial <i>5 points</i> . ction and write it in the corresponding box. no questions were posed or not finding shortc	
Rep.: Switz and 5	Opp.: Kovea	Rev.: That and
5	5	5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	☑ Correct and relevant physics
☐ Scientific approach☐ Validity of conclusions	Scientific approach	☐ Scientific approach
Accurate answers	☐ 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	U Overall impression	Overall impression
Reporter ±1 to,5	Opponent ±1 +(Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
] Structure	Shows the strong and weak points	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
Y Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		fight assistant, so we can be a secure archive your partial grades – please
Contribution to the discussion		do not bend

Final Grade: Reporter

Final Grade: Opponent

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

Scoring Guidelii		Fight (Round no.):				blem no.:
scoring Guidelli	1 C3	uror: Trany		Signature:	lhon	
A non-out-should to t		Kieny	KEGNER	· · · · · · · · · · · · · · · · · · ·	<u> </u>	
A report should include: • a presentation of the appropriate concepapplication of appropriate mathematics • reappropriate) • linking of theoretical and ecomplex ideas in an effective and understan	zasonable exp o x perimental f	erimental techniqu	e to <i>aather</i> and	record data los d		
An opposition should show that: • the opponent challenged the reporter's unappropriate mathematics presented • the opponent appreciated and highlighted the st	phoneur <i>curia</i>	iea the experiment	'al technique us	and <i>principles</i> • ed and questioned	the opponent ur	nderstood the he <i>data</i> • the
A review should show that:			·			
 the reviewer succeeded in giving an object important aspects (especially the controvers such personal opinions were informative, no principles and appropriate mathematics use 	<i>n-trivial</i> and d	: reviewer's <i>person</i> emonstrated, wher	al opinion was i e possible the i	n avidance last:		
 The grade for each of the three teams The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each see Don't punish missing 'answers' when n 	each <i>start wi</i> add to or dec ction and writ	t h 5 points . luct from the initi t e it in the correst	al 5 points .			
Rep.: Switzeland 5	Opp.:_	Kuna 0 yeong	_ 5	Rev.:	hailand	5
			, 0 ;		WHQ	***************************************
***************************************	Physics		+2,5	Physics ±	3	0
☐ Correct and relevant physics☐ Scientific approach		ct and relevant	physics		and relevant p	physics
☐ Validity of conclusions	1	tific approach ty of conclusion	_	Scientifi		
Accurate answers		ate answers	>	i	of conclusi <mark>o</mark> n: e answers	S
7			1,	Accurat	e diisweis	<u> </u>
Presentation ±1		ation ±1	- 1/2	Presentat	tion ±1	-1/2
Clear and understandable	P	and understand	able	☐ Clear an	d understand	able
→ Appropriate manner→ Overall impression		priate manner			iate manner	
	U Overa	ll impression			mpression	No de la constante de la const
leporter ±1 $-\frac{1}{2}$	Oppone	nt ±1	+/	Reviewer	+1	-12
Quality of experimental technique(s)	Respo solution	nse to t <mark>he repo</mark> r on	rter's	Provides report a	a thorough rend discussion	<u></u>
] Structure	Shows	the strong and	weak points			n about
Explanation of formulae and symbols	of the	report shortcomings or		I	es own opinior resented or dis se of question	
Appropriate models, conformity of dimensions	the re			reporter	and the oppo	nent
Slides, on-site experiments, audio, video, as appropriate		nce of the quest bution to the dis		Draws at by the re	tention to poi porter or the	ints missed opponent
References, proper citations of ideas and input of others				This she	et will be collec	ted by the
Novelty of the report				į.	et win be consistant, so we can your partial grad	Scarris
Contribution to the discussion				archive do not i	end	
p. Control of the con					ſ	
Final Grade: Reporter	Final Grad	le: Onnonent	8			4

Final Grade: Reporter

8

Scoring Guidelines

Fight (Round no.): Room: A Stage: Problem no.: Juror: KATHRYN ZEXLAND Signature: Kacke

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 understan	dable manner	production and the state of		
An opposition should show that: • the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent 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 <i>objective summary</i> of the performances the <i>reporter</i> and <i>opponent</i> • the reviewer appreciated the <i>important aspects</i> (especially the <i>controversial</i> ones) • the reviewer's <i>personal opinion</i> was in evidence (<i>not</i> just <i>superficial observations</i>) • such personal opinions were <i>informative</i> , <i>non-trivial</i> and demonstrated, where possible, the reviewer's <i>understanding</i> of <i>concepts</i> , <i>theories</i> , <i>principles and appropriate mathematics</i> used by the reporter and the opponent				
 Consider the following suggestions to Select each partial grade from each se Don't punish missing 'answers' when r 	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . ction and <i>write it</i> in the corresponding box. no questions were posed or not finding shortc			
Rep.: ERIC use of laser far shape very clove Physics ±3 5	Opp.: 0 0 1 60 6 5 Physics ±3	Rev.: PEERA 5		
☐ Correct and relevant physics ☐ Scientific approach hot very ☐ Validity of conclusions	Correct and relevant physics Scientific approach Validity of conclusions	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions		
Accurate answers Presentation ±1 Clear and understandable Appropriate manner Overall impression	Accurate answers osked a goeshor Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 Clear and understandable Appropriate manner Overall impression		
Reporter ±1	Opponent ±1	Reviewer ±1		
Quality of experimental technique(s) Structure	Response to the reporter's solution Shows the strong and weak points of the report	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed		
 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 () () () () () () () () () () () () ()	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	good ask of free body diagram excellent dimensionality viscously not important.	This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend		
		MO steeming		

Final Grade: Reporter



Scoring Guidelines	Fight (Round no.): 1 Room: A Stage: 1 Problem no.: 2 Juror: Yung - Yuan Hsu. Signature: Yung - Yuan Hau
A report should include:	
application of appropriate mathematics • reasonable e	cand principles of the problem • an explanation of the observed phenomena • an experimental technique to gather and record data (or demonstrate the phenomena if all findings to draw suitable conclusions • an attempt to communicate difficult or

complex ideas in an effective and understandable manner An opposition should show that:

• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* and *principles* • the opponent understood the appropriate mathematics presented ● the opponent 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

 Select each partial grade from each sec 	tion and write it in the corresponding box.	
 Don't punish missing 'answers' when no 	o questions were posed or not finding shortco	omings if there were none to find.
Rep.: Eric. 5	Opp.: Doye ong 5	Rev.: PEERA 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 –0, 6.
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and	of the report	topics presented or discussed
symbols Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
of dimensions	☐ Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
□ Novelty of the report		fight assistant, so we can be archive your partial grades — please
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Scoring Guidelii	705	om: A Stage: Problem no.:
3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Juror: M. Müller	Signature:
The state of appropriate multicinuties of	easonable experimental technique to <i>gather</i> and experimental findings to draw suitable conclusions.	explanation of the observed phenomena • and record data (or demonstrate the phenomena if ions • an attempt to communicate difficult or
An opposition should show that: • the opponent challenged the reporter's unappropriate mathematics presented • the opponent appreciated and highlighted the st	nderstanding of the presented concepts, theorie	s and principles • the opponent understood the sed and questioned the validity of the data • the
A review should show that:		
	introlles) • the reviewer's personal opinion was in-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,
 Consider the following suggestions to Select each partial grade from each sec 	consists of a partial grade for <i>physics, prese</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . ation and <i>write it</i> in the corresponding box. o questions were posed or not finding short	
Rep.: Surbarland	Opp.: Porea	Day P Thailand
5	Opp Forea 5	Rev.: Peera 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 ☐ Accurate answers	☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
☐ Appropriate manner☐ Overall impression	☐ Appropriate manner	Appropriate manner
	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 ■ Structure	Shows the strong and weak points	Expresses own oninion about
Explanation of formulae and symbols	of the report	topics presented or discussed
Appropriate models, conformity of dimensions	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Slides, on-site experiments, audio, video, as appropriate	Relevance of the questions Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the
☐ Novelty of the report		fight assistant, so we can scan it and archive your partial grades – please
Contribution to the discussion		do not bend

Final Grade: Reporter

Final Grade: Opponent

Scoring Guidelines	Fight (Round no.): Room: Stage: Problem no.: Juror: J. B.A Signature: J. B.A
A report should include:	

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

An opposition should show that:

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

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 see Don't punish missing 'answers' when n 	ction and write it in the corresponding box. no questions were posed or not finding shortc	omings if there were none to find.
Rep.: Switzerle d 5	Opp.: Korea 5	Rev.: Trailed 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1
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 ☐ Explanation of formulae and symbols	Shows the strong and weak points of the report Finds shortcomings or errors in	Expresses own opinion about topics presented or discussed
 □ Appropriate models, conformity of dimensions □ Slides, on-site experiments, audio, 	Relevance of the questions	Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
video, as appropriate References, proper citations of ideas and input of others	☐ Contribution to the discussion	the collected by the
☐ Novelty of the report ☐ Contribution to the discussion		This sheet will be on 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

Cooring Coll 1:	Fight (Round no.): Roc	m: Stage: Problen	n no.:
Scoring Guideli			Signature:	_{
A non-ant-late tall		U		
A report should include: • a presentation of the appropriate concept application of appropriate mathematics • appropriate) • linking of theoretical and a complex ideas in an effective and understant	reasonable experimental techniq <i>experimental findings</i> to draw	ue to <i>aather</i> and	record data for domandamen the - b-	· · · · · · · · · · · · · · · · · · ·
An opposition should show that: • the opponent challenged the reporter's u appropriate mathematics presented • the o opponent appreciated and highlighted the si	nderstanding of the presented copponent critiqued the experimen	ntal terhniaue us	and <i>principles</i> • the opponent unders ed and questioned the <i>validity</i> of the <i>d</i>	stood the
A review should show that:				
 the reviewer succeeded in giving an objectimportant aspects (especially the controver such personal opinions were informative, no principles and appropriate mathematics use 	siai ones) • the reviewer's <i>perso</i> on-trivial and demonstrated, who	nal opinion was ere possible the	in avidance land in the sum a district at	
 The grade for each of the three teams The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each see Don't punish missing 'answers' when remaining the properties of the	each start with 5 points. add to or deduct from the ini ction and write it in the corre.	tial <i>5 points</i> .		
Rep.: Kurea 5	Opp.: Thailan	5	Rev.: Switzland	5
Physics ±3 +2	Physics ±3	7 3	Physics +2	0
☐ Correct and relevant physics	Correct and relevant	nhysics	Physics ±3	
☐ Scientific approach	Scientific approach	. pirysics	☐ Correct and relevant phys☐ Scientific approach	sics
☐ Validity of conclusions	☐ Validity of conclusion	าร	☐ Validity of conclusions	
☐ Accurate answers	☐ Accurate answers		☐ Accurate answers	
Presentation ±1	Presentation ±1	-0,5	Presentation ±1	-0,5
Clear and understandable	Clear and understand	dable	☐ 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 repo	rter's	Provides a thorough review report and discussion	w of
☐ Structure☐ Explanation of formulae and	Shows the strong and of the report	weak points	Expresses own opinion about opics presented or discuss	out sed
symbols	Finds shortcomings o	r errors in	Relevance of questions to	both the
Appropriate models, conformity of dimensions	Relevance of the que:	stions	reporter and the opponent Draws attention to points r	missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the di	scussion	by the reporter or the oppo	onent
References, proper citations of ideas and input of others			This sheet will be collected b	η the it and
☐ Novelty of the report			fight assistant, so we can some archive your partial grades —	please
Contribution to the discussion			do not bend	
Final Grade: Reporter	Final Grade: Opponent	6	Final Grade: Reviewer	4

		Fight (Round no.):	<u>i</u>
Scoring	Guidelines	Juror: Richy	REG

UEN Signature:

A	report	should	inclu	de:

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

An opposition should show that:

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

A review should show that:

Final Grade: Reporter

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

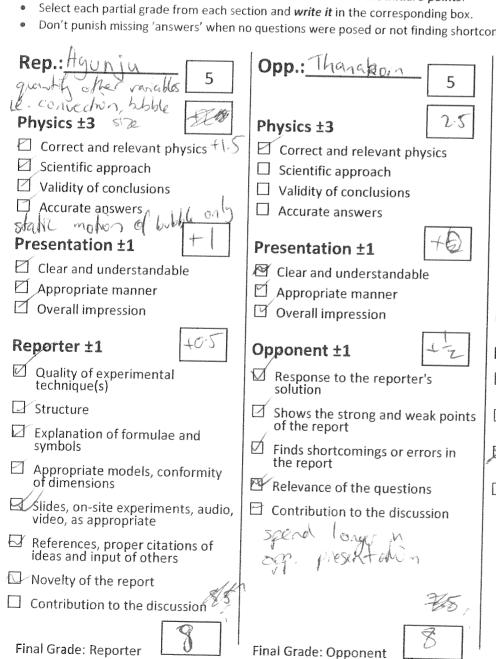
 Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 				
Rep.: Morca Jyung ja 5 Physics ±3	Opp.: Thailand 5	Rev.: Nethelande 5		
 □ Correct and relevant physics □ Scientific approach □ Validity of conclusions □ Accurate answers 	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers		
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1		
Reporter ±1	Opponent ±1	Reviewer ±1 -0.5		
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	Provides a thorough review of 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, video, as appropriate References, proper citations of 	☐ Relevance of the questions ☐ Contribution to the discussion	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: Opponent

Final Grade: Reviewer

Sco	ring	Gui	del	lines
	Section 1			

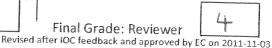
	Fight /Dound no)		n: <u>A</u> Stage: <u>2</u>	8.
Scoring Guidelii			n:A Stage: Signature: _KZw	Problem no.:
A report should include: • a presentation of the appropriate concep application of appropriate mathematics • reappropriate) • linking of theoretical and e complex ideas in an effective and understand	easonable experimental techniqu e E xperimental findinas to draw su	to <i>aather</i> and	record data for domanstrata	the management
An opposition should show that: • the opponent challenged the reporter's ur appropriate mathematics presented • the opponent appreciated and highlighted the st.	oponent <i>critiqued</i> the experiment	al technique use	and <i>principles</i> • the opponer d and questioned the <i>validity</i>	nt understood the of the data • the
A review should show that: • the reviewer succeeded in giving an object important aspects (especially the controvers such personal opinions were informative, no principles and appropriate mathematics used	ial ones) • the reviewer's <i>persond</i> n-trivial and demonstrated, where	o l opinion was in Possible the r	ovidonce I mak in the account of	at at a s
The grade for each of the three teams of the reporter, opponent and reviewer of the reporter of the repor	each s tart with 5 points. Add to or deduct from the initia Ition and write it in the corresp	al 5 points .		
ep: Hyunju somethy other variable 5 convection, bibble	Opp.: Thanakon	5	Rev.: Glenn	5
hysics ±3	Physics ±3	2.5	Physics ±3	
Correct and relevant physics +1-5	Correct and relevant p	hysics	☐ Correct and releva	nt physics
Scientific approach	☐ Scientific approach		☐ Scientific approach	
Validity of conclusions	☐ Validity of conclusions		☐ Validity of conclusi	ons
Accurate answers of bubble only	☐ Accurate answers	glocolomous constitues	☐ Accurate answers	
W VIV				[



Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression Reviewer ±1 ☐ Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent This sheet will be collected by the

fight assistant, so we can scan it and archive your partial grades - please do not bend

Final Grade: Reviewer



	8		• g g	@		1 15
5	corinc	Gul	idel	In	<i>es</i>	
	Append .					111

Fight (Round no.):	Room:A	Stage:2_	Problem i	no.:
Juror: Yung-Yuan	Hoce Signature	: Jung	- Yuar	Hou

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

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent 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

		i e
 The reporter, opponent and reviewer e Consider the following suggestions to e Select each partial grade from each sec 	consists of a partial grade for <i>physics, present</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . Stion and <i>write it</i> in the corresponding box. To questions were posed or not finding shortco	
Rep.: Hyung ju. 5	Opp.: Thanakorn 5	Rev.: <u>Glenn</u> 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable 1/3	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	$\square_{\!$	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 ☐ Explanation of formulae and	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	☐ Relevance of the questions	1.1
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		fight assistant, 30 the archive your partial grades – piease
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

Final Grade: Opponent

Final Grade: Reviewer

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

Fight (Round no.): Room: A Stage: 2 Problem no.: **Scoring Guidelines** Juror: Matthias Müller Signature: 17. 1

A report should include:

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

An opposition should show that:

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

A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the

such personal opinions were <i>informative</i> , no principles and appropriate mathematics use	(stal ones) • the reviewer's personal opinion was con-trivial and demonstrated, where possible, the ed by the reporter and the opponent	in evidence (<i>not</i> just <i>superficial observations</i>) • reviewer's <i>understanding</i> of <i>concepts, theories,</i>
 Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for <i>physics, preser</i> each <i>start with 5 points.</i> add to or deduct from the initial <i>5 points</i> . ction and write it in the corresponding box. no questions were posed or not finding shorte	
Rep.: <u>Korea</u> 5	Opp.: Thailand 5	Rev.: Netherlands 5
Physics ±3 2	Physics ±3	Physics ±3
☐ Correct and relevant physics☐ Scientific approach☐ Validity of conclusions☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 + 1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of
☐ Structure	Shows the strong and weak points	report and discussion Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed
Appropriate models, conformity of dimensions	the report	reporter and the opponent
Slides, on-site experiments, audio, video, as appropriate	Relevance of the questionsContribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the
□ Novelty of the report		This sheet will be the flight assistant, so we can scan it and archive your partial grades — please
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised 2	Final Grade: Reviewer after IOC feedback and approved by EC on 2011-11-03

		Fight (Round no.):	Room:	A St	:age:	Pro
Scoring	Guidelines	Juror: J. BACC	MBE	Signature:	28	£

Д	report	should	include:

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

An opposition should show that:

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

A review should show that:

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

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

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

	Fight (Days due		Λ. 2	Ł
Scoring Guideli			n: Stage: Prob	lem no.:
A report should include: • a presentation of the appropriate conceapplication of appropriate mathematics • appropriate) • linking of theoretical and complex ideas in an effective and understa	experimental findings to draw	He to aather and	rorord data for domonosume at	£
An opposition should show that • the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the	understanding of the presented coopponent critiqued the experimen	i tal technique use	and <i>principles</i> • the opponent under the definition of the defini	derstood the
A review should show that: • the reviewer succeeded in giving an objimportant aspects (especially the controve such personal opinions were informative, in principles and appropriate mathematics us	rsial ones) • the reviewer's <i>perso</i> non-trivial and demonstrated, who	<i>nal opinion</i> was in the possible, the r	a aviidance Imme ived firt. 1 1	
 The grade for each of the three team The reporter, opponent and reviewe Consider the following suggestions to Select each partial grade from each s Don't punish missing 'answers' when 	r each <i>start with 5 points</i> . O <i>add</i> to or <i>deduct</i> from the ini ection and <i>write it</i> in the corre	tial 5 points .		
Rep.: Thailand 5	Opp.: Netherlas	0	Rev.: Switzland	5
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Physics ±3 Correct and relevant Scientific approach Validity of conclusio Accurate answers		Physics ±3 ☐ Correct and relevant p ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	
Presentation ±1	Presentation ±1 ☐ Clear and understan ☐ Appropriate manner ☐ Overall impression		Presentation ±1 ☐ Clear and understanda ☐ Appropriate manner ☐ Overall impression	O
Reporter ±1 Quality of experimental technique(s) Structure	Opponent ±1 Response to the reposolution Shows the strong and		Reviewer ±1 Provides a thorough re report and discussion	
Explanation of formulae and symbolsAppropriate models, conformity of dimensions	Finds shortcomings of the report Relevance of the que	r errors in	Expresses own opinion topics presented or dis Relevance of questions reporter and the oppor Draws attention to poin by the reporter or the opportunity and the content of the opportunity of the reporter or the opportunity attention to poin by the reporter or the opportunity of the reportunity of	cussed to both th nent
Slides, on-site experiments, audio video, as appropriate References, proper citations of ideas and input of others	. Contribution to the d	iscussion	This sheet will be collect	ed by the scan it and
☐ Novelty of the report☐ Contribution to the discussion			fight assistant, so we archive your partial grade do not bend	sp — hidan

Final Grade: Reporter

Scoring Guidelin	Fight (Round no.): Roor 105 Juror: Richy Reaver	m: A Stage: 3 Problem no.: 15 Signature:
-PP. Cation of appropriate mathematics & le	ts, theories and principles of the problem • an a casonable experimental technique to gather and experimental findings to draw suitable conclusions.	explanation of the observed phenomena • an
An opposition should show that: • the opponent challenged the reporter's unappropriate mathematics presented • the opponent appreciated and highlighted the state.	nderstanding of the presented concepts, theories oponent critiqued the experimental technique use rengths and weaknesses of the report	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that: • the reviewer succeeded in giving an object important aspects (especially the controvers)	tive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in n-trivial and demonstrated, where possible the re	n cuidence /mmticute
 Consider the following suggestions to a Select each partial grade from each sec 	consists of a partial grade for <i>physics, presen</i> teach <i>start with 5 points</i> . Find to or <i>deduct</i> from the initial <i>5 points</i> . Stion and <i>write it</i> in the corresponding box. To questions were posed or not finding shorter	
Rep.: Thailand Pitchayapore 5	Opp.: Vethelands Get 5	Rev.: Suitabland 5
Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Quality of experimental technique(s) Structure	Opponent ±1 Response to the reporter's solution	Reviewer ±1 Provides a thorough review of report and discussion
Explanation of formulae and symbols	Shows the strong and weak points of the report Finds shortcomings or errors in the report	Expresses own opinion about topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	Relevance of the questions Contribution to the discussion	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		This sheet will be collected by the fight assistant, so we can scan it and
Contribution to the discussion		fight assistant, so the fight assistant, so the archive your partial grades – please do not bend

Final Grade: Reporter

A STATE OF		- 4	₽				6		7	8	a	3		
%			1 1		/	# #	Ø	P		#	2	1	-	A STATE OF
	CO		11			L	ä			H	Ø			
	_			the state of the s			20	- B	40000	302	ш	-		Sec.

Fight (Round no.): _____ Room:

A report should include:

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

An opposition should show that:

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

A review should show that:

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

principles and appropriate mathematics use	by the reporter and the opponent	eviewer's understanding of concepts, theories,
 The reporter, opponent and reviewer of consider the following suggestions to select each partial grade from each sec 	consists of a partial grade for <i>physics, presen</i> teach <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . Stion and <i>write it</i> in the corresponding box. o questions were posed or not finding shorte	
Rep.: Pitchegaporn 5	Opp.: Peter 5	Rev.: Enc 5
Physics ±3 wrong -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 to givet	☐ Appropriate manner
M Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and	of the report	topics presented or discussed
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the
Appropriate models, conformity of dimensions	Relevance of the questions	reporter and the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others	no presentation? good ask for force diagram,	This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report	per follow through.	fight assistant, so we can be archive your partial grades — please
Contribution to the discussion	A 12. 0.00001	do not bend
position in the contract of th	granded and the contract of th	Ma 110-

Final Grade: Opponent

Scaring C		Fight (Round no.): Ro	om:A	Stage:F	Problem no.:
Scoring Guidel	ines	Juror: Yung-	Yuan >	Suc Signature		Yuan A
A report should include: • a presentation of the appropriate con application of appropriate mathematics appropriate) • linking of theoretical an complex ideas in an effective and unders.	d experiments	al findings to draw				
An opposition should show that • the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the	at: s understandin	g of the presented co		es and principle used and questic	s • the opponent oned the <i>validity</i> (t understood the
A review should show that:						
 the reviewer succeeded in giving an ob- important aspects (especially the control such personal opinions were informative, principles and appropriate mathematics to 	non-trivial and	d demonstrated, who	iai opinion was	er and opponen in evidence (no reviewer's und	t • the reviewer ot just superficial erstanding of cor	appreciated the observations) • ncepts, theories,
 The grade for each of the three team The reporter, opponent and reviewe Consider the following suggestions Select each partial grade from each Don't punish missing 'answers' when 	to add to or d section and w	with 5 points. leduct from the init wite it in the corres	ial 5 points.			
Rep.: Pitchayaporn 5	Орр.	and the second	5	Rev.:_	and trees	5
Physics ±3	Physic	:s ±3	-10	Physics	+3	_/
Correct and relevant physics	☑ Corr	rect and relevant	physics	I	ct and relevan	t physics
Scientific approach	☐ Scie	ntific approach			tific approach	c priysics
☐ Validity of conclusions☐ Accurate answers	1	dity of conclusion	S	1	ty of conclusio	ns
Accurate answers	LJ Accı	ırate answers	8 14-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	☐ Accur	ate answers	
Presentation ±1 Clear and understandable	4	itation ±1 X	9407222		ation ±1	+1
Appropriate manner	,	r and understand	able		and understan	
Overall impression	1	opriate manner all impression			priate manner	•
(CO)				Uvera	ll impression	g*************************************
Quality of experimental	Oppon Resp	ent ±1 onse to the repor		Reviewe		H
technique(s)	solut	ion		Provid	es a thorough and discussior	review of า
Structure Explanation of formulae and symbols	Jordan	rs the strong and e report		Expres topics	ses own opinic presented or d	on about liscussed
Appropriate models, conformity of dimensions	Line re			Releva	nce of questioner and the opp	ns to both the onent
Slides, on-site experiments, audio, video, as appropriate		ance of the quest ibution to the dis		Draws by the	attention to po reporter or the	oints missed opponent
References, proper citations of ideas and input of others				This sh	eet will be colle	cted by the
Novelty of the report					eet will be ssistant, so we cal grayour partial gray	N Stan is over
Contribution to the discussion			Approximately and the state of		your partial sto hend	age and the second seco

Final Grade: Reporter

Scoring	Gui	ide	li	1es
---------	-----	-----	----	-----

	ż	
Scoring Guideli	Fight (Round no.): Room Nes Juror: Matthias Maller	m: A Stage: 3 Problem no.: 15
application of appropriate mathematics •	pts, theories and principles of the problem • an reasonable experimental technique to gather and experimental findings to draw suitable conclusions.	explanation of the observed phenomena • an
An opposition should show that • the opponent challenged the reporter's u	: understanding of the presented concepts, theories opponent critiqued the experimental technique use	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that: • the reviewer succeeded in giving an objeimportant aspects (especially the controver	ective summary of the performances the reporter resial ones) • the reviewer's personal opinion was in contrivial and demonstrated, where possible, the r	evidence (not just superficial observations)
The <i>reporter, opponent</i> and <i>reviewer</i> Consider the following <i>suggestions</i> to Select each partial grade from each se	consists of a partial grade for <i>physics</i> , <i>presen</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . ection and <i>write it</i> in the corresponding box. no questions were posed or not finding shortc	
hysics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
resentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression
Quality of experimental technique(s) Structure Explanation of formulae and symbols	Opponent ±1 Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in	Reviewer ±1 Provides a thorough review of report and discussion 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

Reporter ±1

Rep .: Theuland

☐ Scientific approach

☐ Accurate answers

Presentation ±1

✓ Validity of conclusions

☐ Clear and understandable

 □ Appropriate manner ☑ Overall impression

☐ Correct and relevant physics

Physics ±3

Quality of experimental technique(s)

☑ Structure

Explanation of formulae and symbols

☐ Appropriate models, conformity of dimensions

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

References, proper citations of ideas and input of others

□ Novelty of the report

Final Grade: Reporter

☐ Contribution to the discussion

Final Grade: Opponent

☐ Contribution to the discussion



Final Grade: Reviewer

This sheet will be collected by the

fight assistant, so we can scan it and

archive your partial grades - please

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

do not bend

Corina	Cuidolino	Fight (Round no.): Room: A Stage: 2 Problem no.:
Scoring	Guidelines	Juror: J.BALCOMBE Signature: ARBL

Α	report	should	include:
		on a wide dog a strain	2 4 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

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

An opposition should show that:

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

opponent appreciated and highlighted the s	trengths and weaknesses of the report	the variation of the data willie
A review should show that:		
Land Coperious Life Could Obe	ctive summary of the performances the reporter rsial ones) • the reviewer's personal opinion was con-trivial and demonstrated, where possible, the	in a delan del
 Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points</i> . <i>add</i> to or <i>deduct</i> from the initial <i>5 points</i> . ction and <i>write it</i> in the corresponding box. no questions were posed or not finding shorte	
Rep.: Trailed 5	Opp.: Nestelade 5	Rev.: Surizerlas 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 + ½	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
Appropriate models, conformity of dimensions	the report Relevance of the questions	Relevance of questions to both the reporter and the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the
☐ Novelty of the report		This sheet will be defined assistant, so we can scan it and archive your partial grades — please
Contribution to the discussion		do not bend
		OD HOLE BOTT
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

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

	7 @	Fight (Round no.):	Roo	m: A Sta	ge: /i Probl	lem no : S
Scoring Guidel	ines	Juror: Chuan Ye			OR,	ef t
A report should include:			<u> </u>			J
 a presentation of the appropriate con application of appropriate mathematics appropriate) linking of theoretical an complex ideas in an effective and unders 	d <i>experimenta</i>	e xperimental technique A l findinas to draw su	a to aathor and	rocoved doman lov.	Same a residence () 1	
An opposition should show the the opponent challenged the reporter appropriate mathematics presented • the opponent appreciated and highlighted the	s <i>understandir.</i> e opponent <i>cri</i>	tiquea the experimenta	al technique us	s and <i>principles</i> • ed and questione	the opponent und d the <i>validity</i> of th	lerstood the
A review should show that:				The state of the s		***************************************
• the reviewer succeeded in giving an olimportant aspects (especially the control such personal opinions were informative principles and appropriate mathematics	<i>versiai</i> ones) • . <i>non-trivial</i> an	the reviewer's <i>persona</i> d demonstrated, where	<i>Il opinion</i> was possible the	والمستعدد المتعدد المت		
 The grade for each of the three teal The reporter, opponent and review Consider the following suggestions Select each partial grade from each Don't punish missing 'answers' whe 	<i>er</i> each <i>start</i> to <i>add</i> to or a section and a	<i>with 5 points.</i> <i>deduct</i> from the initia <i>vrite it</i> in the corresp	al 5 points .			
Rep.: Notherlands 5	Орр	: Switz and	5	Rev.:	orea	5
Physics ±3 –2	Physi	cs ±3	+(Physics ±	:3	+2
Correct and relevant physics Scientific approach	·	rrect and relevant p	physics		and relevant pl	hysics
Scientific approach Validity of conclusions	l	entific approach			ic approach	
☐ Accurate answers		idity of conclusions curate answers	6	i	of conclusions	
		arate answers	procedural relations and the second	│ □ Accurat	e answers	
Presentation ±1	Prese	ntation ±1	0	Presenta	tion ±1	-0.5
☐ Clear and understandable	☐ Cle	ar and understanda	able	☐ Clear ar	nd understandal	ble
☐ Appropriate manner ☐ Overall impression		propriate manner		·	riate manner	
Coveran impression	, LJ Ove	erall impression	general	Overall	impression	
Reporter ±1 -95	Орро	nent ±1		Reviewer	· ±1	+05
Quality of experimental technique(s)	Res solu	ponse to the repor ition	ter's	☐ Provide	s a thorough rev nd discussion	
☐ Structure	☐ Sho	ws the strong and	weak points	Express	es own oninion	ahout
Explanation of formulae and symbols	Fine	he report Is shortcomings or	errors in	topics p	resented or disc ce of questions	cussed
Appropriate models, conformity of dimensions	tne	report evance of the quest		reporter	and the oppon	ent
Slides, on-site experiments, audio video, as appropriate		tribution to the dis		by the re	ttention to poin eporter or the o	ts missed pponent
References, proper citations of ideas and input of others	1			This she	et will be collecte	ed by the
Novelty of the report	- Anna Anna Anna Anna Anna Anna Anna Ann			1	istant, so we can s your partial grade	State in a.
Contribution to the discussion				do not	pend	

Final Grade: Reporter

Scoring Guidel	ines	V	. Por.	~?	A T
		Juror: Francis	y KELLO	Signature:	e: 4 Problem no.: _
A report should include:					<u> </u>
 a presentation of the appropriate con application of appropriate mathematics appropriate) linking of theoretical an complex ideas in an effective and unders 	cepts, theories • reasonable e d experimenta tandable mann	and principles of the principl	ne problem • a ue to gather a suitable concla	an <i>explanation</i> of the nd <i>record data</i> (or <i>de</i> usions • an attempt	e observed phenomena • ar monstrate the phenomena i to communicate difficult or
An opposition should show that the opponent challenged the reporter's appropriate mathematics presented • the opponent appreciated and highlighted the	at: s understandin	g of the presented co	oncepts, theor		
A review should show that: • the reviewer succeeded in giving an ob- important aspects (especially the control such personal opinions were informative, principles and appropriate mathematics to	ojective summa versial ones) • t non-trivial and used by the repo	ry of the performan he reviewer's <i>persor</i> demonstrated, whe orter and the oppone	ces the <i>report</i> nal opinion wa re possible, the	er and opponent • the sin evidence (not just e reviewer's understa	ne reviewer appreciated the tsuperficial observations) • nding of concepts, theories,
The grade for each of the three team The reporter, opponent and reviewe Consider the following suggestions to Select each partial grade from each so Don't punish missing 'answers' when	o add to or de	educt from the initi	ial 5 points .		
on Malfalla l			t iinaing shor		
Rep.: Methelands 5	Орр.:	Sa feeland Mig	5	Rev.: W) rea
hysics ±3 $\begin{bmatrix} -3 \end{bmatrix}$	Physic	s ±3	0	Physics ±3	+2
Correct and relevant physics	Corr	ect and relevant	physics		nd relevant physics
Scientific approach Validity of conclusions	☐ Scier	itific approach		☐ Scientific a	approach
Accurate answers	-	ity of conclusions rate answers	S	☐ Validity of ☐ Accurate a	conclusions
esentation ±1	Presen	tation ±1	+ 1		
Clear and understandable		and understanda	ahle	Presentation Clear and L	
Appropriate manner		opriate manner		Appropriat	understandable
Overall impression	☐ Overa	Ill impression		☐ Overall imp	
Porter ±1	Oppone	ent ±1	+ 1	Reviewer ±	
Quality of experimental technique(s)	Respo	nse to the report	ter's	Provides a treport and	thorough review of
Structure Explanation of formulae and	☐ Shows of the	the strong and v	veak points	☐ Expresses o	wn opinion about ented or discussed
Symbols Appropriate models, conformity	Finds s the re	shortcomings or e port	errors in	☐ Relevance of	of questions to both the d the opponent
Slides, on-site experiments audio	·	nce of the questi		☐ Draws atten	ition to noints missad
ndeo, as appropriate	Contril	oution to the disc	cussion	by the repor	rter or the opponent
References, proper citations of deas and input of others				This sheet w	rill be collected by the
Novelty of the report				fight assistan	it, so we can scan it and partial grades — please
ontribution to the discussion				do not bend	
al Grade: Reporter	Final Grad	e: Opponent	Revised	Final Grade: Re	viewer Pproved by EC on 2011-11-03

Scoring Guidelines	Fight (Round no.): Room Juror: KATHRYN ZEALAND	:A_ Stage:4_ Problem no.:3 Signature:
A report should include: • a presentation of the appropriate concepts, theories application of appropriate mathematics • reasonable appropriate) • linking of theoretical and experiments complex ideas in an effective and understand the concepts are concepts.	experimental technique to gathar and m	acount deservation and the second

lex ideas in an *effective* and *understandable* manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent 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:

Iboyeen aspeces (capenally the followers	tive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in en-trivial and demonstrated, where possible, the red by the reporter and the opponent	
 Consider the following suggestions to Select each partial grade from each sec 	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . ction and <i>write it</i> in the corresponding box. to questions were posed or not finding shortc	
Rep.: Moarten 5	Opp.: Meg 5	Rev.: Hyungju 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
too shelf		
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	or the report	Lopics presented or discussed
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the
Appropriate models, conformity of dimensions	Relevance of the questions	reporter and the opponent good for askim oppositions Draws attention to points missed by the reporter or the opposite
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the
Novelty of the report		This sheet will be the flight assistant, so we can scan it and archive your partial grades — please
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised a	Final Grade: Reviewer ofter IOC feedback and approved by EC on 2011-11-03

Carrie San			4	i							8		7	4	4					
A.	Read Property		9	Br.	7	1	e e	60000	8	Æ.	Ø		1		8	20	4	1	A STATE OF	
Same of the	•	Ø	8	ø	#	q	₩.		L	9 /	7	L		2	ø	Ø.	H			,
					-	Second P			_		•	-	40000	Non	-	au	1000	- CORES	Olive.	

Fight (Round no.): Room	:_A9	Stage:	Problem no.:	3
Juror: Yung-Yuan Hsu	Signature	: Yung.	Yuan)	Hou

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

Α	report	should	include
---	--------	--------	---------

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

An opposition should show that:

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

A review should show that:

Final Grade: Reporter

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

 Select each partial grade from each sec 	add to or deduct from the initial 5 points. tion and write it in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find.
Rep.: Maarton, 5	Opp.: <u>Meg</u> 5	Rev.: Hyung ju 5
Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
Scientific approach Validity of conclusions Accurate answers	Scientific approach Validity of conclusions Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 Quality of experimental	Opponent ±1 Response to the reporter's	Reviewer ±1
technique(s) Structure Explanation of formulae and symbols	solution Shows the strong and weak points of the report Finds shortcomings or errors in	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	the report 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		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please
☐ Contribution to the discussion		do not bend

Final Grade: Opponent

C	<i>~</i> a	7	o 7 &	7	g		T			a	N	~		
Second P		-			9			M			ı		J	

Fight (Round no.):	Room:	A Stage:	4 Problem no.: 3
Juror: <u>Matthias</u>	Müller	Signature:	1-

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

An opposition should show that:

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

A review should show that:

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

Don't punish missing 'answers' when n	o questions were posed or not finding shortc	omings if there were none to find.
Rep.: Netherland 5	Opp.: Swehelend 5	Rev.: Lovea 5
Physics ±3 - 23	Physics ±3	Physics ±3
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	Scientific approach Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☑ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	☑ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	☐ Clear and understandable
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about
☐ Explanation of formulae and	of the report	topics presented or discussed
symbols Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
of dimensions	☐ Relevance of the questions	Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the
☐ Novelty of the report		This sheet will be com- fight assistant, so we can scan it and archive your partial grades — please
☐ Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer

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

A SERVICE OF THE PARTY OF THE P				4				4000	la.	- 4	9 8	7	40	i e	2			
%	E A	7		月	8	7	P.S	1	. ø	# A		1	8	8	20	4		-
	LL	I.	ı	H	į.			G	L	A A			H	H	H	Ø		
	-		_	_		_	Small	-1000	400	· 60 60	- C	4000	#	#	100	49	1	0000

Fight (Round no.):	Room:	Stage:	<u>4</u> F	Problem no.: _	3
Juror: J. BAR	combes	ignature: _ 🕹	SC	Bu_	social-

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

An opposition should show that:

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

A review should show that:

Final Grade: Reporter

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

parish missing unswers when h	o questions were posed or not finding shortco	omings if there were none to find.
Rep.: Nefferlands 5	Opp.: Switzelad 5	Rev.: Krea 5
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	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)	Opponent ±1 Response to the reporter's solution	Reviewer ±1 Provides a thorough review of report and discussion
 ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity 	☐ Shows the strong and weak points of the report☐ Finds shortcomings or errors in the report	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent
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
		- daniewiczenieniegy

Final Grade: Opponent