

Scoring Guidelines

Fight (Round no.): 1-1 Room: 17 Stage: 1 Problem no.: 8

Juror: Feng Song Signature: Feng Song

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: Slovakia
Kamila
Sovokova

5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reporter ± 1

- ☐ Quality of experimental technique(s)
- ☐ Structure
- ☐ Explanation of formulae and symbols
- ☐ Appropriate models, conformity of dimensions
- ☐ Slides, on-site experiments, audio, video, as appropriate
- ☐ References, proper citations of ideas and input of others
- ☐ Novelty of the report
- ☐ Contribution to the discussion

Final Grade: Reporter

6

Opp.: Austria
Tomas

5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Opponent ± 1

- ☐ Response to the reporter's solution
- ☐ Shows the strong and weak points of the report
- ☐ Finds shortcomings or errors in the report
- ☐ Relevance of the questions
- ☐ Contribution to the discussion

Final Grade: Opponent

6

Rev.: Singapore
Lin

5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reviewer ± 1

- ☐ Provides a thorough review of report and discussion
- ☐ 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

7

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 1 Problem no.: 8

Juror: Dina Izadi Signature: [Signature]

A report should include:

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

An opposition should show that:

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

A review should show that:

- the 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.: Slovakia } 5
Kamila

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☐ Validity of conclusions
- ☒ Accurate answers

+1

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

0.5

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

0.5

Opp.: Austria } 5
Tamas

Physics ± 3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☒ Validity of conclusions
- ☒ Accurate answers

4.5

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☒ Overall impression

0.75

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

0.75

Rev.: Singapore } 5
Lim

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☐ Accurate answers

5

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

1

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

1

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

5

Final Grade: Opponent

6

Final Grade: Reviewer

7

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 1 Problem no.: 8

Juror: Othmar MARTI Signature: Othmar Marti

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**
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A review should show that:

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- the reviewer appreciated the **important aspects** (especially the **controversial** ones)
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Rep.: Slovakia 5

Physics ± 3

- ☐ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reporter ± 1

- ☐ Quality of experimental technique(s)
- ☐ Structure
- ☐ Explanation of formulae and symbols
- ☒ Appropriate models, conformity of dimensions
- ☐ Slides, on-site experiments, audio, video, as appropriate
- ☒ References, proper citations of ideas and input of others
- ☐ Novelty of the report
- ☒ Contribution to the discussion

Final Grade: Reporter

Opp.: Austria 5

Physics ± 3

- ☐ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☒ Accurate answers

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☒ Overall impression

Opponent ± 1

- ☒ Response to the reporter's solution
- ☒ Shows the strong and weak points of the report
- ☒ Finds shortcomings or errors in the report
- ☐ Relevance of the questions
- ☒ Contribution to the discussion

Final Grade: Opponent

Rev.: Singapore 5

Physics ± 3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reviewer ± 1

- ☒ Provides a thorough review of report and discussion
- ☒ 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

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 1 Problem no.: 8
 Juror: FRANCIS KUNWERTZ Signature: [Signature]

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: Slovakia 5

Physics ± 3

- ☐ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☒ Accurate answers

+1

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☒ Overall impression

0

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

+1

Opp.: Austria 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

0

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☒ Overall impression

0

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

0

Rev.: Singapore 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

0

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

0

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

0

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

7

Final Grade: Opponent

5

Final Grade: Reviewer

5

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 1 Problem no.: 8

Juror: DAGMAR PANDISOVA Signature: [Signature]

A report should include:

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

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Rep.: Slovakia 5

Physics ± 3 1

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1 0

- ☒ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reporter ± 1 0

- ☒ Quality of experimental technique(s)
- ☒ Structure
- ☐ Explanation of formulae and symbols
- ☒ Appropriate models, conformity of dimensions
- ☒ Slides, on-site experiments, audio, video, as appropriate
- ☐ References, proper citations of ideas and input of others
- ☐ Novelty of the report
- ☐ Contribution to the discussion

Final Grade: Reporter

6

Opp.: Austria 5

Physics ± 3 0

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1 0

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Opponent ± 1 0

- ☒ 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

Final Grade: Opponent

5

Rev.: Singapore 5

Physics ± 3 0

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1 0

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reviewer ± 1 0

- ☐ 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

5

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: I Problem no.: 8
 Juror: BORGIE Signature: WBoys

A report should include:

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

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Rep.: SL 5

Physics ±3

- ☒ Correct and relevant physics
☐ Scientific approach
☒ Validity of conclusions
☐ Accurate answers

Presentation ±1

- ☒ Clear and understandable
☐ Appropriate manner
☐ Overall impression

Reporter ±1

- ☐ Quality of experimental technique(s)
☐ Structure
☒ Explanation of formulae and symbols
☒ Appropriate models, conformity of dimensions
☒ Slides, on-site experiments, audio, video, as appropriate
☐ References, proper citations of ideas and input of others
☐ Novelty of the report
☐ Contribution to the discussion

Final Grade: Reporter

8

Opp.: A 5

Physics ±3

- ☒ Correct and relevant physics
☐ Scientific approach
☐ Validity of conclusions
☐ Accurate answers

Presentation ±1

- ☒ Clear and understandable
☒ Appropriate manner
☐ Overall impression

Opponent ±1

- ☒ Response to the reporter's solution
☐ Shows the strong and weak points of the report
☒ Finds shortcomings or errors in the report
☒ Relevance of the questions
☐ Contribution to the discussion

Final Grade: Opponent

8

Rev.: S 5

Physics ±3

- ☒ Correct and relevant physics
☐ Scientific approach
☐ Validity of conclusions
☐ Accurate answers

Presentation ±1

- ☒ Clear and understandable
☐ Appropriate manner
☐ Overall impression

Reviewer ±1

- ☐ Provides a thorough review of report and discussion
☒ 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

Scoring Guidelines

Fight (Round no.): 1-2 Room: H Stage: 2 Problem no.: 14

Juror: Fery SONG Signature: [Signature]

A report should include:

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

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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 opponent appreciated and highlighted the **strengths and weaknesses** of the report

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Rep.: Austria 5
Tomas

Physics ± 3 -2.5

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☒ Accurate answers

Presentation ± 1 +1

- ☒ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reporter ± 1 -0.5

- ☒ Quality of experimental technique(s)
- ☐ Structure
- ☒ Explanation of formulae and symbols
- ☒ Appropriate models, conformity of dimensions
- ☒ Slides, on-site experiments, audio, video, as appropriate
- ☒ References, proper citations of ideas and input of others
- ☒ Novelty of the report
- ☒ Contribution to the discussion

Final Grade: Reporter

3

Opp.: Singapore 5
Shien

Physics ± 3 -1

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1 0

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Opponent ± 1 0

- ☐ 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

Final Grade: Opponent

6

Rev.: Slovakia 5
Marco

Physics ± 3 +1

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1 0

- ☒ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reviewer ± 1 +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

7

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 2 Problem no.: 14

Juror: Dina Izadi Signature: Izadi

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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 opponent appreciated and highlighted the **strengths and weaknesses** of the report

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

Rep.: Austria 5

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☒ Accurate answers

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Reporter ± 1

- ☐ Quality of experimental technique(s)
- ☒ Structure
- ☒ Explanation of formulae and symbols
- ☒ Appropriate models, conformity of dimensions
- ☒ Slides, on-site experiments, audio, video, as appropriate
- ☒ References, proper citations of ideas and input of others
- ☐ Novelty of the report
- ☒ Contribution to the discussion

Final Grade: Reporter

7

Opp.: Singapore 5

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☒ Accurate answers

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☒ Overall impression

Opponent ± 1

- ☐ Response to the reporter's solution
- ☒ Shows the strong and weak points of the report
- ☒ Finds shortcomings or errors in the report
- ☒ Relevance of the questions
- ☐ Contribution to the discussion

Final Grade: Opponent

8

Rev.: 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reviewer ± 1

- ☐ Provides a thorough review of 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

7

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 2 Problem no.: 14
 Juror: OEHMAR MARTI Signature: OEHMAR MARTI

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: Austria 5

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☐ Validity of conclusions
- ☒ Accurate answers

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Reporter ± 1

- ☒ Quality of experimental technique(s)
- ☐ Structure
- ☒ Explanation of formulae and symbols
- ☒ Appropriate models, conformity of dimensions
- ☒ Slides, on-site experiments, audio, video, as appropriate
- ☒ References, proper citations of ideas and input of others
- ☐ Novelty of the report
- ☒ Contribution to the discussion

Final Grade: Reporter

8

Opp.: Singapore 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Opponent ± 1

- ☒ Response to the reporter's solution
- ☒ Shows the strong and weak points of the report
- ☐ Finds shortcomings or errors in the report
- ☒ Relevance of the questions
- ☒ Contribution to the discussion

Final Grade: Opponent

5

Rev.: Slovakia 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☒ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Reviewer ± 1

- ☐ Provides a thorough review of report and discussion
- ☒ 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

6

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 2 Problem no.: 14

Juror: FRANCE KUNEN Signature: [Signature]

A report should include:

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

An opposition should show that:

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

A review should show that:

- the 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.: Angels

5

Physics ± 3

+1

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

0

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reporter ± 1

+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

Opp.: Singapore

5

Physics ± 3

+1

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

+1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Opponent ± 1

+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

Rev.: Slovakia

5

Physics ± 3

+1

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

+1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reviewer ± 1

+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: Reporter

7

Final Grade: Opponent

8

Final Grade: Reviewer

8

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 2 Problem no.: 14

Juror: JAGMAR PANOŠOVA' Signature: Pan.

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: Austria 5

Physics ± 3

- ☐ Correct and relevant physics
- ☒ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Reporter ± 1

- ☐ Quality of experimental technique(s)
- ☐ Structure
- ☒ Explanation of formulae and symbols
- ☒ Appropriate models, conformity of dimensions
- ☒ Slides, on-site experiments, audio, video, as appropriate
- ☒ References, proper citations of ideas and input of others
- ☐ Novelty of the report
- ☐ Contribution to the discussion

Final Grade: Reporter

4

Opp.: Singapore 5

Physics ± 3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Opponent ± 1

- ☒ Response to the reporter's solution
- ☒ Shows the strong and weak points of the report
- ☒ Finds shortcomings or errors in the report
- ☐ Relevance of the questions
- ☐ Contribution to the discussion

Final Grade: Opponent

6

Rev.: Slovakia 5

Physics ± 3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Reviewer ± 1

- ☐ Provides a thorough review of report and discussion
- ☐ 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

7

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: I Problem no.: 14
 Juror: BORGHE Signature: W. B. O. R.

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: A
 _____ 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☒ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reporter ± 1

- ☒ Quality of experimental technique(s)
- ☐ Structure
- ☒ Explanation of formulae and symbols
- ☒ Appropriate models, conformity of dimensions
- ☒ Slides, on-site experiments, audio, video, as appropriate
- ☐ References, proper citations of ideas and input of others
- ☒ Novelty of the report
- ☐ Contribution to the discussion

Final Grade: Reporter

5

Opp.: S
 _____ 5

Physics ± 3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☒ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Opponent ± 1

- ☒ Response to the reporter's solution
- ☒ Shows the strong and weak points of the report
- ☒ Finds shortcomings or errors in the report
- ☐ Relevance of the questions
- ☐ Contribution to the discussion

Final Grade: Opponent

7

Rev.: SL
 _____ 5

Physics ± 3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1

- ☐ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Reviewer ± 1

- ☐ Provides a thorough review of report and discussion
- ☐ 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

7

Scoring Guidelines

Fight (Round no.): 1-3 Room: H Stage: 3 Problem no.: 6

Juror: Feng Song Signature: Feng Song

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: Singapore 5
Daniel Mark

Physics ± 3 +2

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1 +1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reporter ± 1 +0

- ☐ Quality of experimental technique(s)
- ☐ Structure
- ☐ Explanation of formulae and symbols
- ☐ Appropriate models, conformity of dimensions
- ☐ Slides, on-site experiments, audio, video, as appropriate
- ☐ References, proper citations of ideas and input of others
- ☐ Novelty of the report
- ☐ Contribution to the discussion

Final Grade: Reporter

8

Opp.: Slovakia 5
Mates

Physics ± 3 +1

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1 +1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Opponent ± 1 0

- ☐ 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

Final Grade: Opponent

7

Rev.: Austria 5
Daniel Freid

Physics ± 3 +1

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ± 1 +1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

Reviewer ± 1 +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

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 3 Problem no.: 6

Juror: Dina Izadi Signature: Dina Izadi

rejected ~~17~~

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: Singapore 5

Daniel

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

-0.75

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

0.5

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

0.25

Opp.: Slovakia 5

matej

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

-0.5

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

0.5

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

0

Rev.: Austria 5

Daniel

Physics ± 3

- ☐ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☐ Accurate answers

+1.5

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

0.25

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

+0.25

Final Grade: Reporter

5

Final Grade: Opponent

5

Final Grade: Reviewer

7

This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please **do not bend**

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 3 Problem no.: 6

Juror: Othmar MARTI Signature: Othmar Marti

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: Singapur 5

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☒ Validity of conclusions
- ☐ Accurate answers

+3

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

+1

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

0

Opp.: Slovakia 5

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

+1

Presentation ± 1

- ☐ Clear and understandable
- ☒ Appropriate manner
- ☒ Overall impression

+1

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

0

Rev.: Austria 5

Physics ± 3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

0

Presentation ± 1

- ☒ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

+1

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

+1

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

9

Final Grade: Opponent

7

Final Grade: Reviewer

7

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 3 Problem no.: 6

Juror: Francis Bunta Signature: [Signature]

A report should include:

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

An opposition should show that:

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

A review should show that:

- the 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

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

+1

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

0

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

0

Opp.: Slovakia 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

+1

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

0

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

0

Rev.: Austria 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

+1

Presentation ± 1

- ☐ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

+1

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

+1

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

8

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: 3 Problem no.: 6

Juror: DAGMAR ZANOŠOVA Signature: [Signature]

A report should include:

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

An opposition should show that:

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

A review should show that:

- the 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

Physics ± 3

- ☒ Correct and relevant physics
- ☒ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

+ 1/2

Presentation ± 1

- ☒ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

- 1/2

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

+ 0

Opp.: Slovakia 5

Physics ± 3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

+ 1

Presentation ± 1

- ☒ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

+ 1/4

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

+ 3/4

Rev.: Austria 5

Physics ± 3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☒ Validity of conclusions
- ☐ Accurate answers

+ 0.5

Presentation ± 1

- ☒ Clear and understandable
- ☐ Appropriate manner
- ☐ Overall impression

+ 0.5

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

1

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

5

Final Grade: Opponent

7

Final Grade: Reviewer

7

Scoring Guidelines

Fight (Round no.): 1 Room: H Stage: I Problem no.: 6
 Juror: BORGEX Signature: Wht

A report should include:

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

An opposition should show that:

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

A review should show that:

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

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

Rep.: 5

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

Final Grade: Reporter

Opp.: 5

Physics ±3

- ☒ Correct and relevant physics
- ☐ Scientific approach
- ☐ Validity of conclusions
- ☐ Accurate answers

Presentation ±1

- ☐ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Opponent ±1

- ☒ Response to the reporter's solution
- ☒ Shows the strong and weak points of the report
- ☒ Finds shortcomings or errors in the report
- ☐ Relevance of the questions
- ☐ Contribution to the discussion

Final Grade: Opponent

Rev.: 5

Physics ±3

- ☐ Correct and relevant physics
- ☐ Scientific approach
- ☒ Validity of conclusions
- ☐ Accurate answers

Presentation ±1

- ☐ Clear and understandable
- ☒ Appropriate manner
- ☐ Overall impression

Reviewer ±1

- ☐ Provides a thorough review of 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