



GCSE

**Science A (4461) /
Physics (4451)**

Specification A

PHY1AP, PH1ASF & PH1ASH

Mark Scheme

2011 Examination – June Series

The blank answer sheet for this component can be found at the end of this document.

This component is an objective test for which the following list indicates the correct answers used in marking the candidates' responses.

Further copies of this Mark Scheme are available to download from the AQA Website: www.aqa.org.uk

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GCSE
SCIENCE A (4461)/PHYSICS (4451)
 Objective Test Answer Key
PHY1AP (Energy and Electricity)
June 2011
 Foundation Tier

| Question | Key | | | |
|----------|----------|---|----------|----------|
| One | A | coal-fired | | 1 |
| | B | gas-fired | | 2 |
| | C | nuclear | | 3 |
| | D | oil-fired | | 4 |
| Two | A | chemical | | 3 |
| | B | electrical | | 2 |
| | C | kinetic | | 4 |
| | D | light | | 1 |
| Three | A | prevents hot air from rising from the flask | | 1 |
| | B | reduces heat loss by conduction through the base | | 4 |
| | C | reduces heat loss by radiation | | 2 |
| | D | prevents heat loss by conduction and convection | | 3 |
| Four | A | This is where the electricity is being generated. | | 1 |
| | B | This is where the electricity is being used. | | 4 |
| | C | This is where the voltage is decreased. | | 3 |
| | D | This is where the voltage is increased. | | 2 |
| Five | A | 10% | | 2 |
| | B | 20% | | 3 |
| | C | 40% | | 4 |
| | D | 50% | | 1 |
| | A | B | C | D |
| Six | 4 | 2 | 1 | 1 |
| Seven | 2 | 2 | 3 | 2 |
| Eight | 2 | 1 | 1 | 3 |
| Nine | 3 | 4 | 1 | 3 |

GCSE
SCIENCE A (4461)/PHYSICS (4451)
 Objective Test Answer Key
PHY1AP (Energy and Electricity)
June 2011
 Higher Tier

| Question | Key | | | |
|----------|----------|------------|----------|----------|
| One | A | 10% | | 2 |
| | B | 20% | | 3 |
| | C | 40% | | 4 |
| | D | 50% | | 1 |
| Two | A | food mixer | | 2 |
| | B | iron | | 1 |
| | C | radio | | 3 |
| | D | television | | 4 |
| | A | B | C | D |
| Three | 2 | 1 | 1 | 3 |
| Four | 3 | 4 | 1 | 3 |
| Five | 1 | 1 | 1 | 4 |
| Six | 3 | 4 | 4 | 4 |
| Seven | 3 | 3 | 2 | 1 |
| Eight | 4 | 2 | 3 | 3 |
| Nine | 1 | 3 | 4 | 1 |

The AQA UMS Conversion Calculator can be found at the following web address:

<http://www.aqa.org.uk/umsconversion>

Unit : PHY1AP PHYSICS UNIT 1A

Centre :

Candidate Number :

UCI :

Series : 6M11

Candidate Name :

28-JUN-11

For completion by the Examination Invigilator. Please fill this circle if the candidate is absent:

HIGHER TIER

Instructions on how to complete this answer sheet are given on the question paper. Please make sure you follow them carefully.

Questions **ONE** to **NINE** Choose one response **1 - 4** for each of the parts **A - D**

| QUESTION ONE | | 1 | 2 | 3 | 4 |
|--------------|-----|-----------------------|-----------------------|-----------------------|-----------------------|
| 1A | 10% | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 1B | 20% | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 1C | 40% | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 1D | 50% | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION TWO | | 1 | 2 | 3 | 4 |
|--------------|------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 2A | food mixer | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2B | iron | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2C | radio | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2D | television | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION THREE | | 1 | 2 | 3 | 4 |
|----------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 3A | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3B | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3C | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3D | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION FOUR | | 1 | 2 | 3 | 4 |
|---------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 4A | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4B | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4C | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4D | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION FIVE | | 1 | 2 | 3 | 4 |
|---------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 5A | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5B | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5C | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5D | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION SIX | | 1 | 2 | 3 | 4 |
|--------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 6A | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6B | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6C | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6D | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION SEVEN | | 1 | 2 | 3 | 4 |
|----------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 7A | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7B | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7C | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7D | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION EIGHT | | 1 | 2 | 3 | 4 |
|----------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 8A | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8B | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8C | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8D | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION NINE | | 1 | 2 | 3 | 4 |
|---------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 9A | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9B | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9C | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9D | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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FOUNDATION TIER

Instructions on how to complete this answer sheet are given on the question paper. Please make sure you follow them carefully.

Questions **ONE** to **NINE** Choose one response **1 - 4** for each of the parts **A - D**

| QUESTION ONE | | 1 | 2 | 3 | 4 |
|--------------|------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1A | coal-fired | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 1B | gas-fired | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 1C | nuclear | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 1D | oil-fired | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION TWO | | 1 | 2 | 3 | 4 |
|--------------|------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 2A | chemical | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2B | electrical | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2C | kinetic | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2D | light | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION THREE | | 1 | 2 | 3 | 4 |
|----------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 3A | prevents hot air from rising from the flask | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3B | reduces heat loss by conduction through the base | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3C | reduces heat loss by radiation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3D | prevents heat loss by conduction and convection | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION FOUR | | 1 | 2 | 3 | 4 |
|---------------|---|-----------------------|-----------------------|-----------------------|-----------------------|
| 4A | This is where the electricity is being generated. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4B | This is where the electricity is being used. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4C | This is where the voltage is decreased. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4D | This is where the voltage is increased. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION FIVE | | 1 | 2 | 3 | 4 |
|---------------|-----|-----------------------|-----------------------|-----------------------|-----------------------|
| 5A | 10% | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5B | 20% | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5C | 40% | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5D | 50% | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| QUESTION SIX | | 1 | 2 | 3 | 4 |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| 6A | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 6B | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 6C | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 6D | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |

| QUESTION SEVEN | | 1 | 2 | 3 | 4 |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| 7A | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 7B | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 7C | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 7D | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |

| QUESTION EIGHT | | 1 | 2 | 3 | 4 |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| 8A | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 8B | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 8C | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 8D | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |

| QUESTION NINE | | 1 | 2 | 3 | 4 |
|---------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| 9A | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 9B | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 9C | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| 9D | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |

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