

**GCSE**

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

*Specification A*

**PHY1AP, PH1ASF & PH1ASH**

**Mark Scheme**

*2012 Examination – November 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 students' responses.

Further copies of this Mark Scheme are available to download from [aqa.org.uk](http://aqa.org.uk)

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**GCSE**

**SCIENCE A (4461)/PHYSICS (4451)**

Objective Test Answer Key

**PHY1AP (Energy and Electricity)**

**November 2012**

Foundation Tier

<b>Question</b>	<b>Key</b>			
One	<b>A</b>	electrical	<b>3</b>	
	<b>B</b>	thermal	<b>4</b>	
	<b>C</b>	light	<b>1</b>	
	<b>D</b>	kinetic	<b>2</b>	
Two	<b>A</b>	conduction	<b>1</b>	
	<b>B</b>	convection	<b>3</b>	
	<b>C</b>	insulation	<b>2</b>	
	<b>D</b>	radiation	<b>4</b>	
Three	<b>A</b>	Don't flood our farmland	<b>2</b>	
	<b>B</b>	Don't let turbines kill our birds	<b>1</b>	
	<b>C</b>	Nuclear waste causes cancer	<b>4</b>	
	<b>D</b>	Stop releasing polluting gases	<b>3</b>	
Four	<b>A</b>	falling water	<b>2</b>	
	<b>B</b>	oil	<b>3</b>	
	<b>C</b>	plutonium	<b>1</b>	
	<b>D</b>	wood	<b>4</b>	
Five	<b>A</b>	0.6	<b>4</b>	
	<b>B</b>	5	<b>3</b>	
	<b>C</b>	15	<b>2</b>	
	<b>D</b>	30	<b>1</b>	
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Six	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>
Seven	<b>4</b>	<b>4</b>	<b>1</b>	<b>3</b>
Eight	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>
Nine	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>

**GCSE**  
**SCIENCE A (4461)/PHYSICS (4451)**

Objective Test Answer Key

**PHY1AP (Energy and Electricity)**

**November 2012**

Higher Tier

Question	Key			
One	<b>A</b>	0.6	<b>4</b>	
	<b>B</b>	5	<b>3</b>	
	<b>C</b>	15	<b>2</b>	
	<b>D</b>	30	<b>1</b>	
Two	<b>A</b>	coal	<b>4</b>	
	<b>B</b>	hydroelectric	<b>3</b>	
	<b>C</b>	nuclear	<b>1</b>	
	<b>D</b>	wind	<b>2</b>	
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Three	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>
Four	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>
Five	<b>2</b>	<b>3</b>	<b>3</b>	<b>2</b>
Six	<b>2</b>	<b>4</b>	<b>2</b>	<b>3</b>
Seven	<b>1</b>	<b>3</b>	<b>2</b>	<b>1</b>
Eight	<b>1</b>	<b>3</b>	<b>2</b>	<b>3</b>
Nine	<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>

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

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**Unit : PHY1AP      PHYSICS UNIT 1A**

**Centre :**

**Candidate Number :**

**UCI :**

**Series : BG12**

**Candidate Name :**

**06-NOV-12**

*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	0.6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1B	5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1C	15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1D	30	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION TWO		1	2	3	4
2A	coal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2B	hydroelectric	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2C	nuclear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2D	wind	<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	electrical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1B	thermal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1C	light	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1D	kinetic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION TWO		1	2	3	4
2A	conduction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2B	convection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2C	insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2D	radiation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION THREE		1	2	3	4
3A	Don't flood our farmland.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3B	Don't let turbines kill our birds.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3C	Nuclear waste causes cancer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3D	Stop releasing polluting gases.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION FOUR		1	2	3	4
4A	falling water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4B	oil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4C	plutonium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4D	wood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION FIVE		1	2	3	4
5A	0.6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5B	5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5C	15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5D	30	<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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