

**GCSE**

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

*Specification A*

**PHY1BP, PH1BSF & PH1BSH**

**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)

Copyright © 2012 AQA and its licensors. All rights reserved.

#### COPYRIGHT

AQA retains the copyright on all its publications. However, registered schools for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to schools to photocopy any material that is acknowledged to a third party even for internal use within the school.

Set and published by AQA.

AQA Education (AQA) is a registered charity (number 1073334) and a company limited by guarantee registered in England and Wales (number 3644723). Our registered address is AQA, Devas Street, Manchester M15 6EX.

**GCSE**  
**SCIENCE A (4461)/PHYSICS (4451)**  
 Objective Test Answer Key  
**PHY1BP (Radiation and the Universe)**  
**November 2012**  
 Foundation Tier

Question	Key			
One	<b>A</b>	infra red	<b>3</b>	
	<b>B</b>	radio waves	<b>4</b>	
	<b>C</b>	ultraviolet	<b>2</b>	
	<b>D</b>	visible light	<b>1</b>	
Two	<b>A</b>	gamma only	<b>3</b>	
	<b>B</b>	gamma and beta only	<b>2</b>	
	<b>C</b>	gamma, beta and alpha	<b>1</b>	
	<b>D</b>	no radiation	<b>4</b>	
Three	<b>A</b>	microwaves	<b>4</b>	
	<b>B</b>	radio waves	<b>2</b>	
	<b>C</b>	visible light	<b>1</b>	
	<b>D</b>	X-rays	<b>3</b>	
Four	<b>A</b>	categoric	<b>2</b>	
	<b>B</b>	control	<b>1</b>	
	<b>C</b>	dependent	<b>3</b>	
	<b>D</b>	reliable	<b>4</b>	
Five	<b>A</b>	11	<b>1</b>	
	<b>B</b>	33	<b>3</b>	
	<b>C</b>	44	<b>2</b>	
	<b>D</b>	84	<b>4</b>	
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Six	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>
Seven	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>
Eight	<b>3</b>	<b>2</b>	<b>3</b>	<b>3</b>
Nine	<b>4</b>	<b>3</b>	<b>4</b>	<b>2</b>

**GCSE**  
**SCIENCE A (4461)/PHYSICS (4451)**  
 Objective Test Answer Key  
**PHY1BP (Radiation and the Universe)**  
**November 2012**  
 Higher Tier

Question	Key			
One	<b>A</b>	11	<b>1</b>	
	<b>B</b>	33	<b>3</b>	
	<b>C</b>	44	<b>2</b>	
	<b>D</b>	84	<b>4</b>	
Two	<b>A</b>	alpha	<b>4</b>	
	<b>B</b>	beta	<b>2</b>	
	<b>C</b>	gamma	<b>3</b>	
	<b>D</b>	alpha, beta and gamma	<b>1</b>	
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Three	<b>3</b>	<b>2</b>	<b>3</b>	<b>3</b>
Four	<b>4</b>	<b>3</b>	<b>4</b>	<b>2</b>
Five	<b>4</b>	<b>4</b>	<b>1</b>	<b>4</b>
Six	<b>1</b>	<b>3</b>	<b>3</b>	<b>1</b>
Seven	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>
Eight	<b>3</b>	<b>1</b>	<b>2</b>	<b>3</b>
Nine	<b>2</b>	<b>3</b>	<b>1</b>	<b>3</b>

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

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

**Unit : PHY1BP      PHYSICS UNIT 1B**

**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	11	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1B	33	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1C	44	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1D	84	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION TWO		1	2	3	4
2A	alpha	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2B	beta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2C	gamma	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2D	alpha, beta and gamma	<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"/>

**For AQA Office Use Only**

2239



2239

# 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**

	1	2	3	4
<b>QUESTION ONE</b>				
<b>1A</b> infra red	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>1B</b> radio waves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>1C</b> ultraviolet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>1D</b> visible light	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1	2	3	4
<b>QUESTION TWO</b>				
<b>2A</b> gamma only	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>2B</b> gamma and beta only	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>2C</b> gamma, beta and alpha	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>2D</b> no radiation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1	2	3	4
<b>QUESTION THREE</b>				
<b>3A</b> microwaves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>3B</b> radio waves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>3C</b> visible light	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>3D</b> X-rays	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1	2	3	4
<b>QUESTION FOUR</b>				
<b>4A</b> categoric	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>4B</b> control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>4C</b> dependent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>4D</b> reliable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1	2	3	4
<b>QUESTION FIVE</b>				
<b>5A</b> 11	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>5B</b> 33	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>5C</b> 44	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>5D</b> 84	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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

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

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

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

For AQA Office Use Only

2239



2239