



**GCSE**

**Science A (4461)**

*Specification A*

**PHY1BP, PH1BSF & PH1BSH**

**Mark Scheme**

*2009 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 candidates' responses.

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

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**GCSE**  
**SCIENCE A (4461)/PHYSICS (4451)**  
 Objective Test Answer Key  
**PHY1BP (Radiation and the Universe)**  
**November 2009**  
 Foundation Tier

Question	Key			
One	<b>A</b>	infra red	<b>2</b>	
	<b>B</b>	microwaves	<b>1</b>	
	<b>C</b>	ultraviolet	<b>4</b>	
	<b>D</b>	X-rays	<b>3</b>	
Two	<b>A</b>	gamma	<b>2</b>	
	<b>B</b>	infra red	<b>3</b>	
	<b>C</b>	radio	<b>1</b>	
	<b>D</b>	visible light	<b>4</b>	
Three	<b>A</b>	count rate	<b>1</b>	
	<b>B</b>	half-life	<b>3</b>	
	<b>C</b>	penetrating power	<b>4</b>	
	<b>D</b>	range	<b>2</b>	
Four	<b>A</b>	contains 5 particles in its nucleus	<b>3</b>	
	<b>B</b>	has a nucleus that is identical in structure to an alpha particle	<b>2</b>	
	<b>C</b>	has the same number of electrons as atom 3	<b>4</b>	
	<b>D</b>	is a different isotope of hydrogen	<b>1</b>	
Five	<b>A</b>	10	<b>2</b>	
	<b>B</b>	15	<b>3</b>	
	<b>C</b>	25	<b>1</b>	
	<b>D</b>	200	<b>4</b>	
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Six	<b>4</b>	<b>2</b>	<b>3</b>	<b>2</b>
Seven	<b>4</b>	<b>2</b>	<b>2</b>	<b>3</b>
Eight	<b>2</b>	<b>4</b>	<b>2</b>	<b>2</b>
Nine	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>

**GCSE**  
**SCIENCE A (4461)/PHYSICS (4451)**  
 Objective Test Answer Key  
**PHY1BP (Radiation and the Universe)**  
**November 2009**  
 Higher Tier

Question	Key			
One	<b>A</b>	10	2	
	<b>B</b>	15	3	
	<b>C</b>	25	1	
	<b>D</b>	200	4	
Two	<b>A</b>	2	3	
	<b>B</b>	9	4	
	<b>C</b>	70	2	
	<b>D</b>	200	1	
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Three	2	4	2	2
Four	2	1	2	3
Five	3	2	3	1
Six	2	4	2	4
Seven	4	1	3	3
Eight	3	2	3	1
Nine	3	2	4	3

**Unit : PHY1BP      PHYSICS UNIT 1B**

**Centre :**

**Candidate Number :**

**UCI :**

Series : BG09

**Candidate Name :**

19-NOV-09

*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	15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1C	25	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1D	200	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION TWO		1	2	3	4
2A	2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2B	9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2C	70	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2D	200	<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	infra red	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1B	microwaves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1C	ultraviolet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1D	X-rays	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION TWO		1	2	3	4
2A	gamma	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2B	infra red	<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	visible light	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION THREE		1	2	3	4
3A	count rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3B	half-life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3C	penetrating power	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3D	range	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION FOUR		1	2	3	4
4A	contains 5 particles in its nucleus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4B	...nucleus identical in structure to an alpha particle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4C	has the same number of electrons as atom 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4D	is a different isotope of hydrogen	<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	15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5C	25	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5D	200	<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"/>	<input type="radio"/>
6B	<input type="radio"/>	<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"/>	<input type="radio"/>
6D	<input type="radio"/>	<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"/>	<input type="radio"/>
7B	<input type="radio"/>	<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"/>	<input type="radio"/>
7D	<input type="radio"/>	<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"/>	<input type="radio"/>
8B	<input type="radio"/>	<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"/>	<input type="radio"/>
8D	<input type="radio"/>	<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"/>	<input type="radio"/>
9B	<input type="radio"/>	<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"/>	<input type="radio"/>
9D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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