



GCSE

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

Specification A

PHY1BP, PH1BSF & PH1BSH

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
PHY1BP (Radiation and the Universe)
June 2011
 Foundation Tier

Question	Key			
One	A	infra red		1
	B	ultraviolet		3
	C	visible light		2
	D	X-rays		4
Two	A	alpha		4
	B	beta		1
	C	gamma		2
	D	X-rays		3
Three	A	leaving the room to switch on the equipment		2
	B	looking through blackened glass		1
	C	wearing thick, insulating gloves		3
	D	using remotely controlled equipment		4
Four	A	electron		1
	B	neutron		3
	C	nucleus		4
	D	proton		2
Five	A	frequency		2
	B	red-shift		4
	C	wavelength		1
	D	wave speed		3
	A	B	C	D
Six	4	3	4	4
Seven	2	4	2	4
Eight	3	1	2	4
Nine	2	3	4	1

GCSE
SCIENCE A (4461)/PHYSICS (4451)
 Objective Test Answer Key
PHY1BP (Radiation and the Universe)
June 2011
 Higher Tier

Question	Key			
One	A	frequency		2
	B	red-shift		4
	C	wavelength		1
	D	wave speed		3
Two	A	16		3
	B	25		2
	C	150		4
	D	600		1
	A	B	C	D
Three	3	1	2	4
Four	2	3	4	1
Five	1	4	2	3
Six	1	4	4	3
Seven	2	2	1	3
Eight	3	4	2	3
Nine	4	3	3	1

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 : 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	frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1B	red-shift	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1C	wavelength	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1D	wave speed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION TWO		1	2	3	4
2A	16	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2B	25	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2C	150	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2D	600	<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	ultraviolet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1C	visible light	<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	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	X-rays	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION THREE		1	2	3	4
3A	leaving the room to switch on the equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3B	looking through blackened glass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3C	wearing thick, insulating gloves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3D	using remotely controlled equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION FOUR		1	2	3	4
4A	electron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4B	neutron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4C	nucleus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4D	proton	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

QUESTION FIVE		1	2	3	4
5A	frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5B	red-shift	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5C	wavelength	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5D	wave speed	<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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