Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 7_ Astronomy

Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Mark Schemes

Q1.

Question Number	Answer	Acceptable answers	Mark
	Any two suitable such as: • Measurements can be taken (1) • Permanent record/evidence (1) • Can be magnified (1) • Can detect waves outside visible part of spectrum (1) • Long exposure (to see faint objects/track objects) (1)	 Analysis/compare 'can record data' Taking photo is insufficient zoom in/show more detail can detect gamma rays, X-rays, ultraviolet, infrared Allow collect more light IGNORE better, brighter, clearer	**(2)**

Q2.

	Answer	Mark
	C Mars and Jupiter A, B and D are not correct because these are not the location of the asteroid belt	**(1)** **AO1**

Q3.

Question Number	Answer	Additional guidance	Mark
(i)	examples: planets have moons (1) the Earth rotates (spins) (1) planets orbit the Sun (1) Pluto is no longer a planet (1) orbits are elliptical (not circular) (1) there are more planets than previously thought (1) ours is not the only solar system (1) Earth is {round/spherical /not flat} (1) planets are not wandering stars (1)	answers must be to do with the solar system	(1)

Question Number	Answer	Additional guidance	Mark
(ii)	smooth curve drawn on the graph (1) horizontal line drawn from 4.6 Earth years to intercept the drawn line/curve (1) EITHER: their reading from line / curve (1) OR 430±30 (million km) (1)	accept curve up to Mars followed by a straight line plot point /draw line at year length = 4.6 reading on distance axis ± half small square from their graph award full marks for the correct answer without working	**(3)**

Q4.

Question Number	Answer	Additional guidance	Mark
(i)	wavelength (of e.m. radiation) increased / frequency decreased (1) as the (star) moves away (from us) (1)	don't penalise planet instead of object stretched/moves to(wards) red end of spectrum spectral lines move to the red end of the spectrum	(2) AO 1 1

Question Number	Answer	Additional guidance	Mark
(ii)	an explanation linking: • big bang has expanding universe (1) • with galaxies moving away (from each other) (1)	 from (original) explosion started at a point accept stars moving away (not objects or planets now) the further away they are the greater is their (recessional) speed idea	(2) AO 1 1

Question Number	Answer	Additional guidance	Mark
(iii)	microwave		(1) AO 1 1

Question Number	Answer	Additional guidance	Mark
(iv)	(radiation) that comes from all over the sky / space / the universe	from the big bang / explosion	(1) AO 1 1

Question Number	Answer	Additional guidance	Mark
(v)	an explanation linking: • the Big Bang theory has a beginning / initial explosion (1) • that releases/gives out radiation (1)	 explosion from a point radiation still present	(2) AO 1 1

Q5.

	Answer	Additional guidance	Mark
(i)	substitution (1) $(z=)\frac{6.72\times10^{-7}-6.56\times10^{-7}}{6.56\times10^{-7}}$ **OR** $(z=)\frac{0.16\times10^{-7}}{6.56\times10^{-7}}$ evaluation (1) 0.024	allow $(z=)\frac{6.72-6.56}{6.56}$ **OR** $(z=)\frac{0.16}{6.56}$ do not accept 0.025 on its own accept 0.0243 / 0.02439 / 0.0244 award full marks for the correct answer without working	**(2)** **AO2**

	Answer	Additional guidance	Mark
(ii)	substitution (1) (v) = 0.024 x 3(.00) x10^{8} evaluation (1) 7.2 x 10^{6} (m/s)	accept (v) = 0.025 x 3 x10^{8} (v) = 0.02 x 3 x10^{8} accept answers which round to: 6.0 x10^{6} (m/s) 7.5 x10^{6} (m/s) 7.3 x10^{6} (m/s) 7.2 x10^{6} (m/s) award full marks for the correct answer without working	**(2)** **AO2**

	Answer	Additional guidance	Mark
(iii)	An explanation linking :- the redshift / z (value) will be larger (1) the galaxy is moving (away) at a higher velocity / recession velocity increased (1)	 bigger (increase in) wavelength bigger difference in wavelength longer wavelength moving (away) faster	(2) AO1