

Name of the Student: _____

Max. Marks : 18 Marks

Time : 18 Minutes

Mark Schemes

Q1.

Question number	Answer	Mark
(i)	150 000 000 (km)	(1)

Question number	Answer	Additional guidance	Mark
(ii)	substitution (1) $1.5 \times 150\,000\,000$ evaluation (1) $225\,000\,000$ (km)	sight of 1.5 or Mars named gains 1 mark full marks will be awarded for correct numerical answer without working	(2)

Q2.

Question number	Answer	Mark
	B	(1)

Q3.

Question number	Answer	Additional guidance	Mark
(i)	accept any temperature between 5500 and 7500 (K) (1)		(1)

Question number	Answer	Additional guidance	Mark
(ii)	the higher the brightness the greater the temperature	or reverse argument allow luminosity for brightness allow heat for temperature	(1)

Question number	Answer	Additional guidance	Mark
(iii)	the greater the mass the higher the brightness	or reverse argument allow luminosity for brightness allow bigger/heavier for greater mass in this context	(1)

Q4.

Question number	Answer	Additional guidance	Mark
(i)	1050 ± 20 (km/s)		(1) AO3 marked with dii

Question number	Answer	Additional guidance	Mark
(ii)	attempt at $\frac{\Delta y}{\Delta x}$ (1) evaluation (1) 70 ± 5 unit (1) km/s/Mpc	could be seen on graph award 2 marks for correct answer without working independent mark km/s Mpc s^{-1} or per second	(3) AO3

Question number	Answer	Additional guidance	Mark
(iii)	an explanation linking: points are scattered widely about the line (on graph) (1) giving wide range of possible gradients (1)	there are many possible best fit lines	(2) AO3

Q5.

Question number	Answer	Mark
	<p>The only correct answer is</p> <p>D the discovery of cosmic microwave background (CMB) radiation</p> <p>A is not correct because it does not indicate the Universe had a beginning</p> <p>B is not correct, it is evidence against the geocentric model of the Universe</p> <p>C is not correct, it is evidence for other solar systems</p>	<p>(1) AO1</p>

Q6.

Question number	Answer	Additional guidance	Mark
	An answer that combines the following points of application of knowledge and understanding to provide a logical description: red shift (1) in light from the star (1)	increased wavelength	(2)

Q7.

	Answer	Acceptable answers	Mark
	(nebula) main sequence (star) (1) AND red giant white dwarf (1) All three in correct order for 2 marks	Red Giant White Dwarf (Main sequence) (1)	(2)