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

Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Mark Schemes

Q1.

Question Number	Answer	Acceptable answers	Mark
(i)	Description including any two of: • gravity (1) • (causes the) nebula to collapse/contract (1) • (causes the) temperature to increase (1)	Pulls {particles/gas} together Forms protostar ke transferred to thermal energy KE/GPE ->thermal GPE -> KE until it was hot enough to start the reaction until fusion starts	**(2)**

Question Number	Answer	Acceptable answers	Mark
(ii)	**D** white dwarf		**(1)**

Q2.

	Answer	Additional guidance	Mark
	1(.0) (1) mm (1)	Allow values between 1.0 and 1.9 allow $1x10^{-3}$ m or 0.001 m for 2 marks if nothing in answer line, credit answer indicated in table	**(2)** **AO3**

Q3.

Question number	Answer	Additional guidance	Mark
	Any **two** from the following improvements: • use wider aperture telescope/camera (1) • better quality objective lens (1) • use longer exposure time while telescope is locked onto star (1) • move telescope to better seeing conditions, e.g. dry desert, higher up a mountain, dark skies (1)	allow improvements from photography, e.g. use longer exposure time use a satellite telescope ignore use pc to adjust the sharpness of the image	**(2)**

Q4.

	Answer	Additional guidance	Mark
(i)	gravitational attraction / gravitational force (causing collapse) (1)	allow gravity ignore weight ignore gpe ignore gravitational energy	**(1)** **AO1**

	Answer	Additional guidance	Mark
(ii)	An explanation linking: (gravity causing) increase in temperature (1) (until hot enough for) fusion (1) (until) balance (between gravity and fusion/thermal) (1)	 allow increase in pressure/density hydrogen to form helium allow nuclear reactions ignore fission allow equilibrium / counteracts	**(3)** **AO1**

Q5.

Question Number	Answer	Acceptable answers	Mark
(i)	**D** ..is expanding ... did not have a beginning		**(1)**

Question Number	Answer	Acceptable answers	Mark
(ii)	Cosmic Microwave Background (Radiation)	[order of words unimportant] CMB(R) reject 'CMB and red shift'	**(1)**

Q6.

Question number	Answer	Mark
(i)	An explanation that combines identification via a judgement (1 mark) to reach a conclusion via justification/reasoning (2 marks): • galaxy C has the greatest red shift (1) • so this galaxy has the greatest speed (1) • since the galaxy with the greatest speed will be furthest away, then galaxy C is at the furthest distance(1)	(3)

Question number	Answer	Additional guidance	Mark
(ii)	20 (nm)	Allow answers in the range 19 to 25	(1)

Question number	Answer	Additional guidance	Mark
(iii)	Substitution (1) $v = \frac{\left(3\times10^{8}\right)\times\left(20\times10^{-9}\right)}{\left(390\times10^{-9}\right)}$ Answer (1) = 15 400 000 (m/s)	allow ecf from (c)(i) power of 10 error = max 1 accept 15 384 615 (m/s) award full marks for correct numerical answer without working	(2)

Q7.

Question Number	Answer	Additional guidance	Mark
	rearrangement (1) $R^3 = \frac{3M}{4 \times \square \times D}$ evaluation (1) (R =) 1.17 x 10^4 m	may be seen as substituted values or as the cube-root form or $R^3 = 1.59 \times 10^{12}$ allow numbers that round to 1.2 x 10^4 (m) award full marks for the correct answer without working	**(2)**