

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
	<p>similarity (both have) expanding Universe (1)</p> <p>difference one from: Steady State, Universe has no beginning (1)</p> <p>Steady State theory requires the continual formation of new matter, the Big Bang theory does not (1)</p>	different interpretation of CMBR	<p>(2) AO1</p>

Q2.

	Answer	Acceptable answers	Mark
	An explanation linking any three of galaxies moving (1) away from Earth / Sun (1) galaxy 2 (moving away) faster (than galaxy 1) (1) galaxy 2 is (likely to be) most distant galaxy (1)	galaxies are (moving) at different speeds / away from each other / universe is expanding	(3)

Q3.

	Answer	Additional guidance	Mark
(i)	nebula (1)	allow any recognisable spelling	(1) AO1

	Answer	Additional guidance	Mark
(ii)	main sequence (1)	allow any recognisable spelling	(1) AO1

Q4.

Question number	Answer	Additional guidance	Mark
	(i) planet (1) (ii) satellite (1) (iii) star (1)	in this order accept recognisable spellings	(3)

Q5.

Question Number	Answer	Mark
(i)	The only correct answer is C red-shifted A is not correct because the spectrum is not blue-shifted B is not correct because the spectrum is not green-shifted D is not correct because the spectrum is not violet-shifted	(1) comp
Question Number	Answer	Mark
(ii)	The only correct answer is D Universe A is not correct because the shift does not provide evidence for the expansion of Earth. B is not correct because the shift does not provide evidence for the expansion of the Milky Way Galaxy C is not correct because the shift does not provide evidence for the expansion of the Solar system	(1) comp

Q6.

Question number	Answer	Additional guidance	Mark
	a description to include time (to complete orbit) increases as height increases (1) relationship is linear (1)	accept positive correlation accept reverse argument (can draw) a straight line (through the points) accept directly proportional in this context	2 AO3.1

Question number	Indicative content	Mark
*	<p>Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme.</p> <p>The indicative content below is not prescriptive and candidates are not required to include all the material which is indicated as relevant. Additional content included in the response must be scientific and relevant.</p> <p style="text-align: center;">AO1</p> <ul style="list-style-type: none"> • planet names: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune • planet(s) orbit the Sun • all planets orbit the Sun • each planet in its own orbit • (all) planet orbits are in the same plane • planets spin (on own axis) • moons orbit planets • some planets have multiple moons • dwarf planets orbit the Sun • asteroids orbit the Sun • comets orbit the Sun • comet orbits not in the same plane as planets 	(6) AO1

Level	Mark	Descriptor
	0	<ul style="list-style-type: none"> • No rewardable material.
Level 1	1-2	<ul style="list-style-type: none"> • Demonstrates elements of physics understanding, some of which is inaccurate. Understanding of scientific ideas lacks detail. (AO1) • Presents a description with some structure and coherence. (AO1)
Level 2	3-4	<ul style="list-style-type: none"> • Demonstrates physics understanding, which is mostly relevant but may include some inaccuracies. Understanding of scientific ideas is not fully detailed and/or developed. (AO1) • Presents a description that has a structure which is mostly clear, coherent and logical. (AO1)
Level 3	5-6	<ul style="list-style-type: none"> • Demonstrates accurate and relevant physics understanding throughout. Understanding of the scientific ideas is detailed and fully developed. (AO1) • Presents a description that has a well-developed structure which is clear, coherent and logical. (AO1)

Level	Mark	Additional Guidance	General additional guidance – the decision within levels e.g. - At each level, as well as content, the scientific coherency of what is stated will help place the answer at the top, or the bottom, of that level.
	0	No rewardable material.	
Level 1	1-2	<u>Additional guidance</u> isolated facts about the objects or the patterns of movement	<u>Possible candidate responses</u> names at least 2 planets
Level 2	3-4	<u>Additional guidance</u> Detailed description of pattern of movement for one set of objects. OR limited description of pattern of movement for two set of objects	<u>Possible candidate responses</u> planets orbit the Sun AND moons orbit planets
Level 3	5-6	<u>Additional guidance</u> Detailed descriptions of pattern of movement for two sets of objects. OR Detailed description of pattern of movement for one set of objects plus limited description for two sets.	<u>Possible candidate responses</u> <u>all</u> planets orbit the Sun, comets orbit the Sun, asteroids orbit the Sun