

The SOLAR SYSTEM & ORBIT MARK SCHEMES

QUESTION 1

question	answers	extra information	mark
(a)(i)	more than	accept any clear indication eg the other two lines crossed out	1
(ii)	less than	accept any clear indication eg the other two lines crossed out	1
(b)	any two from: <ul style="list-style-type: none"> • above the equator • takes / period of 24 hours • (remains) above the same point 	<p>or rotates with the Earth do not credit stays in the same place but accept <u>appears</u> to stay in the same place</p> <p>do not credit just one like satellite X s</p>	2
(c)	<u>low</u> polar		1
total			5

QUESTION 2

	extra information	mark	answers
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(a)(i)	Uranus is twice the distance from the Sun as Saturn (1) (but) 6.8 is not half of 9.6 (1)	or ‘Saturn is half the distance from the Sun as Uranus’ or ‘(but) 9.6 is not twice 6.8’ or ‘the products are not the same’	2
(a)(ii)	the greater the (average) distance from the Sun the less the (average orbital) speed (of the planet) (2)	or the converse or should have concluded that distance is inversely proportional to the square of the orbital speed allow a correct but non comparative statement e.g. ‘a far away planet moves slowly’, for (1)	2
(b)	<u>average</u> distance/speed given (1) (because) the distance/speed is not constant/will vary (slightly)(because the orbit is an ellipse not a circle) (1)		2
Total			6

Question 3

(a) E	(from present/recent) data/evidence/observations of (the rate of change in) Phobos’/ the moon’s orbit (1) (and) continued/extended/ extrapolated (the pattern/trend for the next 100 million years) (1)	or appropriate example of data (1) and its correct use (1) example (present) distance from Phobos to Mars (1) ÷ (average) rate of approach (1)	2
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(b) E	(it is) increasing (1) Phobos/the moon will be nearer (to Mars) (1)	or the radius/circumference/ diameter of the orbit of Phobos/ the moon will decrease/be less only credit 2nd mark if the first mark is correct	2
(c) E	it will increase/be more (1) (because) Phobos/the moon will get/be closer to Mars/ the planet (1)	only credit 2nd mark if the first mark is correct note part(s) of this response may be included as the answer to part (b) read both before marks are awarded	2
Total			6

Question 4

(a)	distance (from the Sun in millions of km) and time taken for <u>orbit</u>	both required in either order not just 'time taken'	1
(b)(i)	either distance (from the Sun in millions of km) or time taken for <u>orbit</u> (and) (average) temperature	not just 'time taken' both required in either order	1

(b)(ii)	(+) 430 / (+) 470 or Mercury / Venus		1
(c)	25 (hours)	do not accept 24 (hours)	1
(d)	...different positions at different times		1
(e)	...direction...speed gravitational	both and in the correct order	1 1
Total			7

Question 5

question	answers	extra information	mark
(a)(i)	greater than	accept any unambiguous indication	1
(a)(ii)	less than	accept any unambiguous indication	1
(a)(iii)	centripetal	accept any unambiguous indication	1
(a)(iv)	24 hours	accept any unambiguous indication	1
(b)(i)	geostationary (orbit)		1
(b)(ii)	low polar (orbit)	do not accept just 'polar (orbit)'	1
Total			6