

Question number	Answer	Notes	Marks
2 (a)	C (the Moon);  A is incorrect because comets orbit stars B is incorrect because Mars orbits the Sun D is incorrect because the Sun orbits in the Milky Way galaxy		1
(b)	D (gravitational);  A is incorrect because there is no air in space; B is incorrect because the ISS is not charged; C is incorrect because friction would act in the opposite direction to motion, not towards Earth		1
(c) (i)	substitution into given formula ( $v = 2\pi r/T$ ); conversion of minutes to seconds; evaluation;  e.g. orbital speed = $2 \times \pi \times 6.8 \times 10^3 / 93(\times 60)$ 93 minutes = $93 \times 60$ (= 5580 seconds) (orbital speed =) 7.7 (km/s)	mark independently -1 for POT errors if km/s changed to m/s unnecessarily	3
(ii)	successful conversion of orbital period and a day into the same unit;  <b>evaluation of ratio to 15.48... to at least 3 sf;</b>  e.g. 1 day = $24 \times 60 = 1440$ minutes $1440/93 = 15.5$	<b>allow 7.656...</b> 459.4, 15.31, 27565, 7.6 scores 2 marks e.g. 1 day = 24 hours = 1440 mins = 86400 seconds, 1 orbit = 0.0645 days = 1.55 hours = 5580 seconds,  allow use of number of orbits = distance travelled in 24 hours ÷ circumference of orbit	2

Total for question 2 = 7 marks