

### 1.5 Space Exploration Homework Questions

**Q1.** Explain how space exploration has improved our understanding of Earth and the Universe. Include at least 3 points in your answer. (3)

**Q2.** "Space exploration costs too much money. We should be spending the money solving problems on Earth before we explore space."

Do you agree or disagree with this statement?

Write a short essay (half an A4 page or 1 full jotter page) discussing this. Remember to justify your opinion. (4)

**Q3.** A spacecraft is used to transport astronauts and equipment to a space station. On its return from space the spacecraft must re-enter the Earth's atmosphere. The spacecraft has a heat shield made from special silica tiles to prevent the inside from becoming too hot.

Why does the spacecraft increase in temperature when it re-enters the atmosphere? (2)

**Q4.** Use the information from the table below to answer the following questions.

<i>Planet</i>	<i>Diameter (kilometres)</i>	<i>Distance from Sun (million kilometres)</i>	<i>Weight of one kilogram at surface (newtons)</i>	<i>Time to go around the Sun once (years)</i>	<i>Time for one complete spin (in Earth days or hours)</i>
Mercury	4800	58	4	0.25	59 days
Venus	12 000	110	9	0.6	243 days
Earth	12 750	150	10	1	24 hours
Mars	7000	228	4	1.9	25 hours
Jupiter	140 000	780	26	12	10 hours
Saturn	120 000	1430	11	30	10 hours
Neptune	50 000	4500	12	165	16 hours

- a) Which planet has the longest day? (1)
- b) Which planet has the longest orbit? (1)
- c) On which planet would a 4 kilogram mass have the greatest weight? (1)

**Q5.** A meteorite is the name given to an object which enters the Earth's atmosphere from space. When they enter the atmosphere meteorites heat up. What energy change takes place when the meteorite enters the atmosphere?

(1)

**Q6.**

In outer space, the engine of a space probe is switched on for a short time. When the engine is switched off, the rocket

- A changes direction
- B moves at a steady speed
- C slows down
- D speeds up
- E follows a curved path.

(1)

**Q7.**

A rocket is pushed forwards because its engine gases

A are pushed backwards

B spread outwards

C are pushed forwards

D surround the rocket

E spread inwards.

(1)
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**Total Marks 15**