

1

(a) Sita made a model of three parts of the solar system, the Sun, Earth and Moon. She used a marble, a torch and a tennis ball.

Draw a line from each part of the solar system to the object she used.

Draw only **three** lines.

part of the solar system

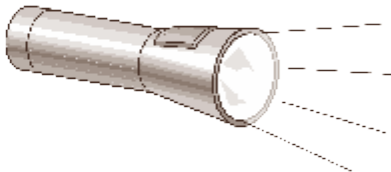
object

Sun



marble

Earth



torch

Moon



tennis ball

2 marks

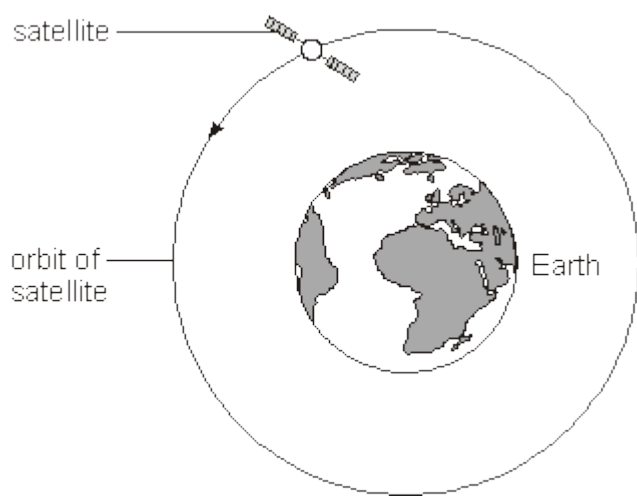
(b) The table below shows the order of some of the planets in our solar system.

Complete the table to show the positions of the Earth, Neptune and the Sun.

| | | | | | | | | |
|--|---------|-------|--|------|---------|--------|--------|--|
| | Mercury | Venus | | Mars | Jupiter | Saturn | Uranus | |
|--|---------|-------|--|------|---------|--------|--------|--|

2 marks

(c) The diagram shows a satellite in orbit around the Earth.



not to scale

(i) Give **one** use of a satellite.

.....

.....

(ii) Which force keeps the satellite in orbit around the Earth?
Tick the correct box.

gravity

friction

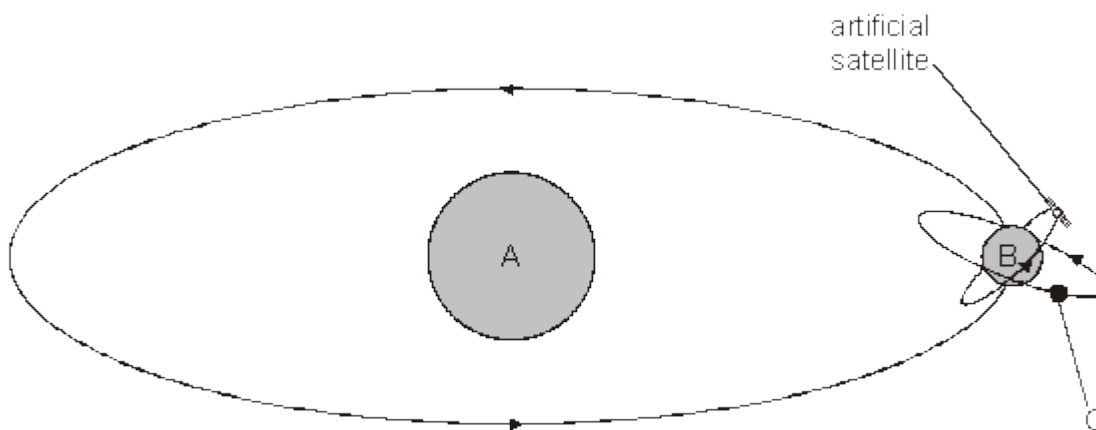
air resistance

magnetism

2 marks
maximum 6 marks

2

The diagram below shows the Earth, the Sun, the Moon and an artificial satellite.



not to scale

(a) Which letters, on the diagram, show the Earth, the Sun and the Moon?

the Earth

the Sun

the Moon

2 marks

(b) Give **one** use of a satellite.

.....
.....

1 mark

(c) Which of the following is a source of light?

Tick the correct box.

the Earth

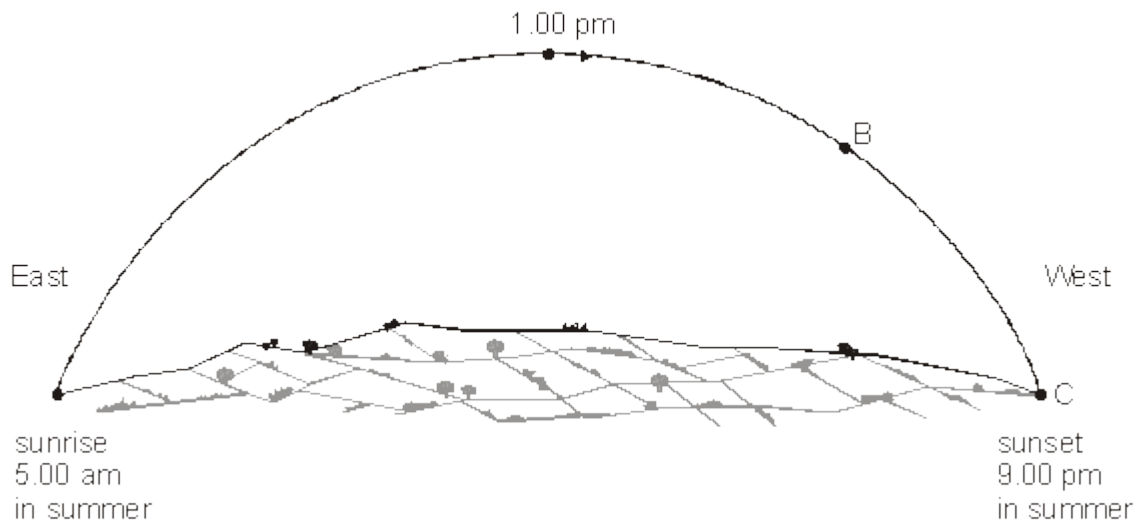
the Moon

the Sun

a satellite

1 mark

(d) The curve shows the path of the Sun in the sky from sunrise to sunset in England one day in **summer**.



(i) **On the curve**, mark the position of the Sun at 9.00 am. Label this point A.

1 mark

- (ii) The Sun seemed to move from point B to point C.
How many hours did this take?
Tick the correct box.

2 hours

6 hours

4 hours

8 hours

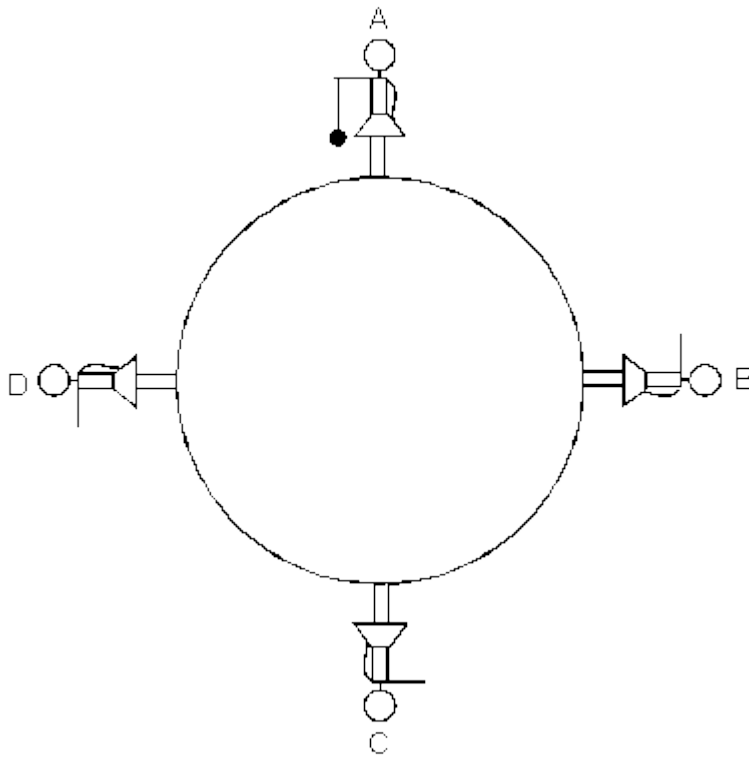
1 mark

- (e) **On the diagram above**, draw the path of the Sun from sunrise to sunset on a day in **winter**.

1 mark
maximum 7 marks

3

Lisa drew a picture of herself standing at four different positions on the Earth,



not to scale

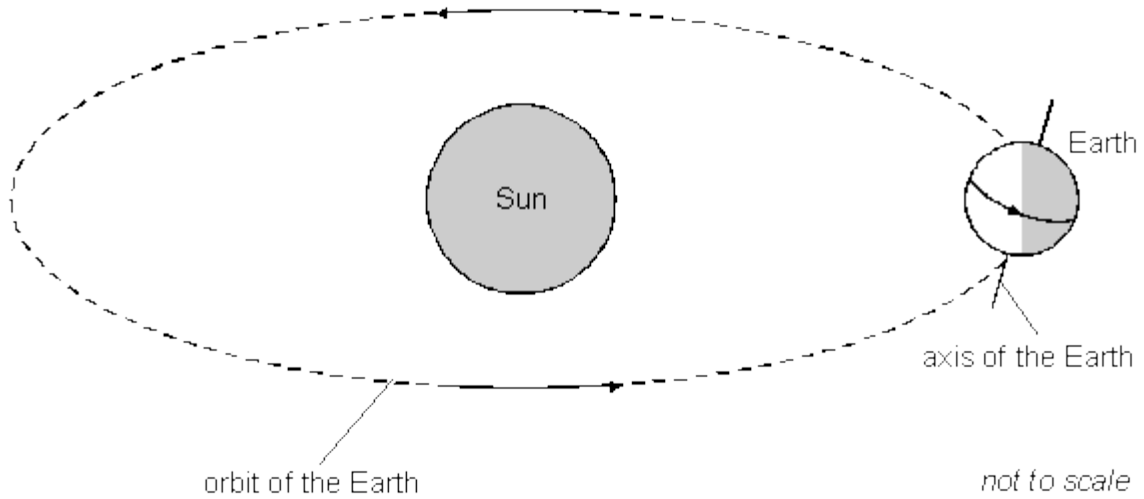
- (a) (i) Draw an arrow at **each** of the four positions to show the direction of the force of gravity on Lisa.
- (ii) The drawing at position A shows Lisa holding a ball on a string.
Draw the ball and string in positions B, C and D.

1 mark

1 mark

(b) The drawing below shows:

- that the Earth goes round the Sun;
- that the Earth rotates on its axis.



Choose from the list below to answer parts (i) and (ii).

60 seconds 60 minutes 24 hours 7 days 28 days 365 days

(i) How long does it take for the Earth to go round the Sun once?

.....

1 mark

(ii) How long does it take for the Earth to rotate on its axis once?

.....

1 mark

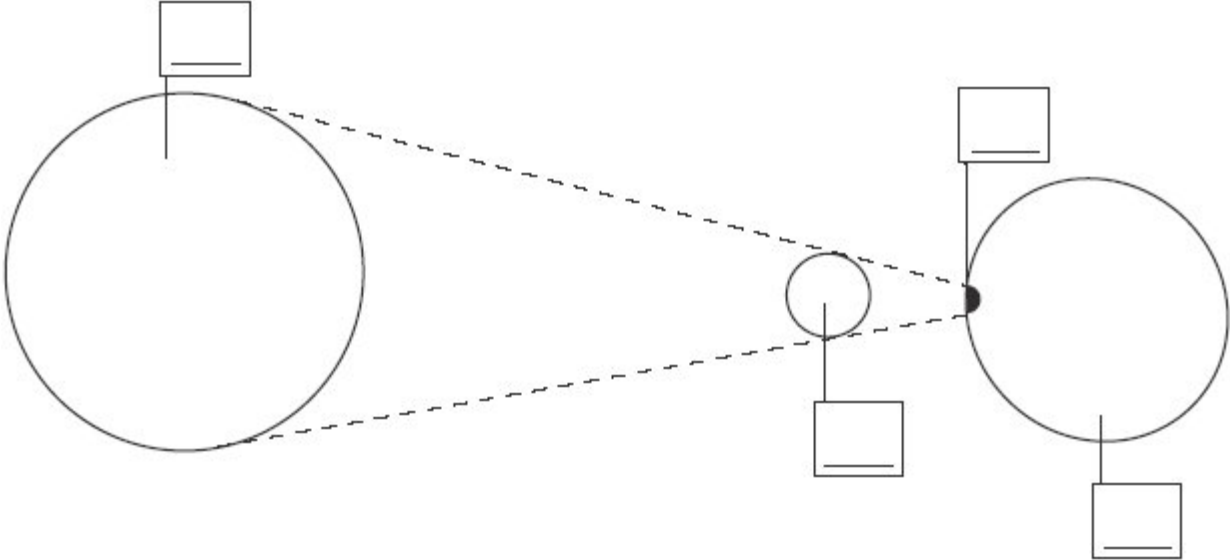
Maximum 4 marks

4

(a) The diagram below shows the positions of the Sun, Moon and Earth during a solar eclipse.

Write numbers (1–4) on the diagram below to label the features during an eclipse.

- 1. the Earth
- 2. the Moon
- 3. the Sun
- 4. a region where the total eclipse of the Sun is taking place



not to scale

2 marks

(b) Scientists discovered a regular cycle of eclipses. It is called the Saros cycle. The table below shows the dates of some eclipses in this cycle.

Complete the table by predicting the date of the next eclipse in the Saros cycle.

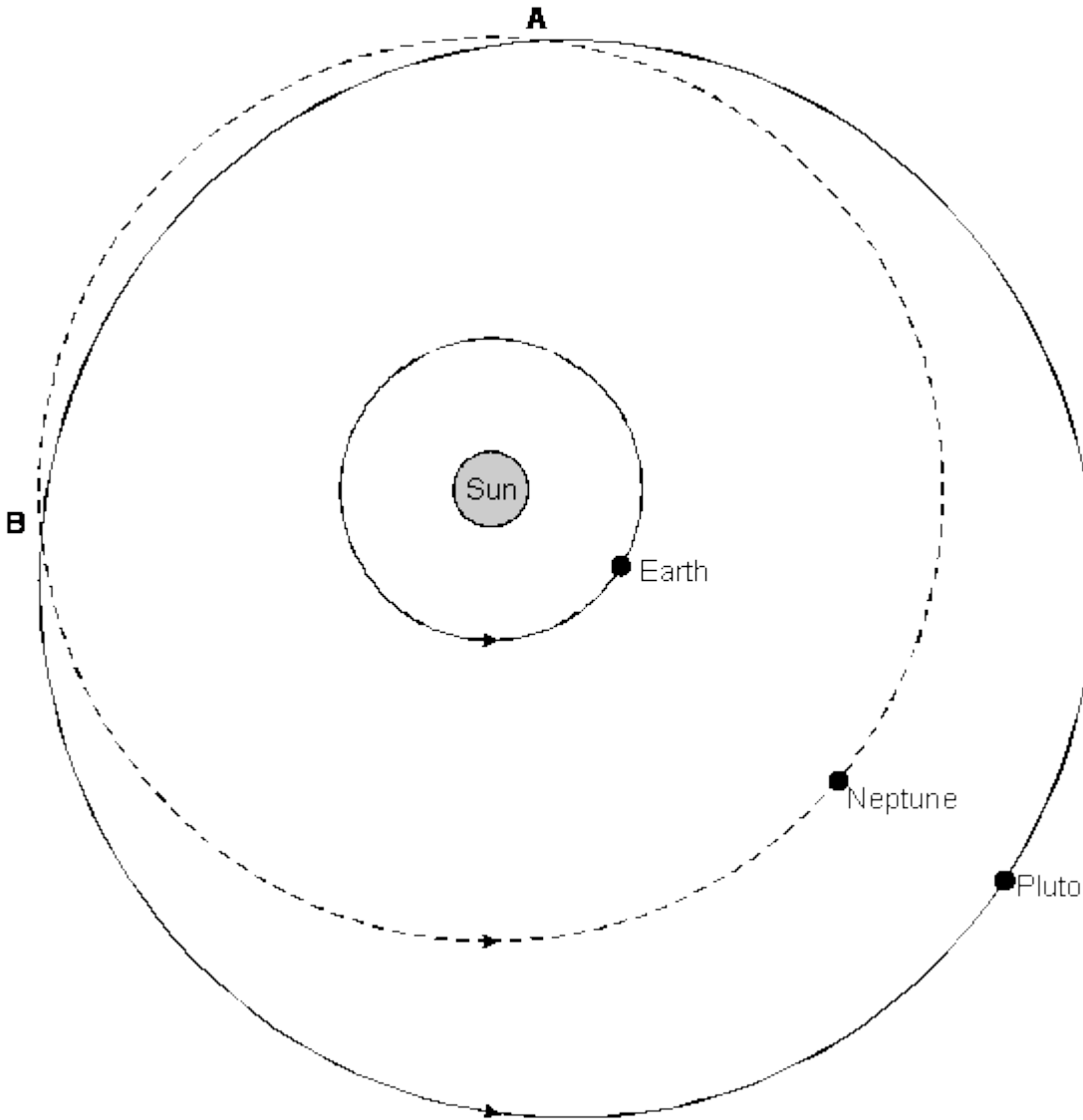
| eclipse | date |
|-----------|------------------|
| eclipse 1 | 20th July 1963 |
| eclipse 2 | 31st July 1981 |
| eclipse 3 | 11th August 1999 |
| eclipse 4 | |

2 marks
maximum 4 marks

5

The diagram below shows the orbits of Neptune, Pluto and the Earth.

At two points, A and B, the orbits of Neptune and Pluto cross over each other.



not to scale

(a) What force keeps planets in orbit around the Sun?

.....

1 mark

(b) Give **two** reasons why it takes Pluto more time than Neptune to orbit the Sun.

1.

.....

2.

.....

2 marks

- (c) (i) Tom can see the Sun because it is a light source. It gives out its own light. Neptune and Pluto are **not** light sources but Tom can see them when he looks through his telescope.

Explain why Tom can see Neptune and Pluto even though they are **not** light sources.

.....
.....
.....
.....

2 marks

- (ii) Between points A and B, Pluto is nearer than Neptune to the Earth. Tom noticed that Pluto is **not** as bright as Neptune, even when Pluto is closer than Neptune to the Earth.

Give **one** reason why Pluto is **not** as bright as Neptune.

.....
.....

1 mark

Maximum 6 marks

6

In 1610, the Italian scientist, Galileo, observed four bright moons near Jupiter. Each night the moons moved.

- (a) (i) The Sun and stars are light sources, and the planets are seen by reflected light. Explain how we can see the moons of Jupiter.

.....
.....
.....
.....

2 marks

- (ii) The four moons are approximately the same distance from the Earth. However, they do **not** have the same brightness. Suggest **one** reason for this.

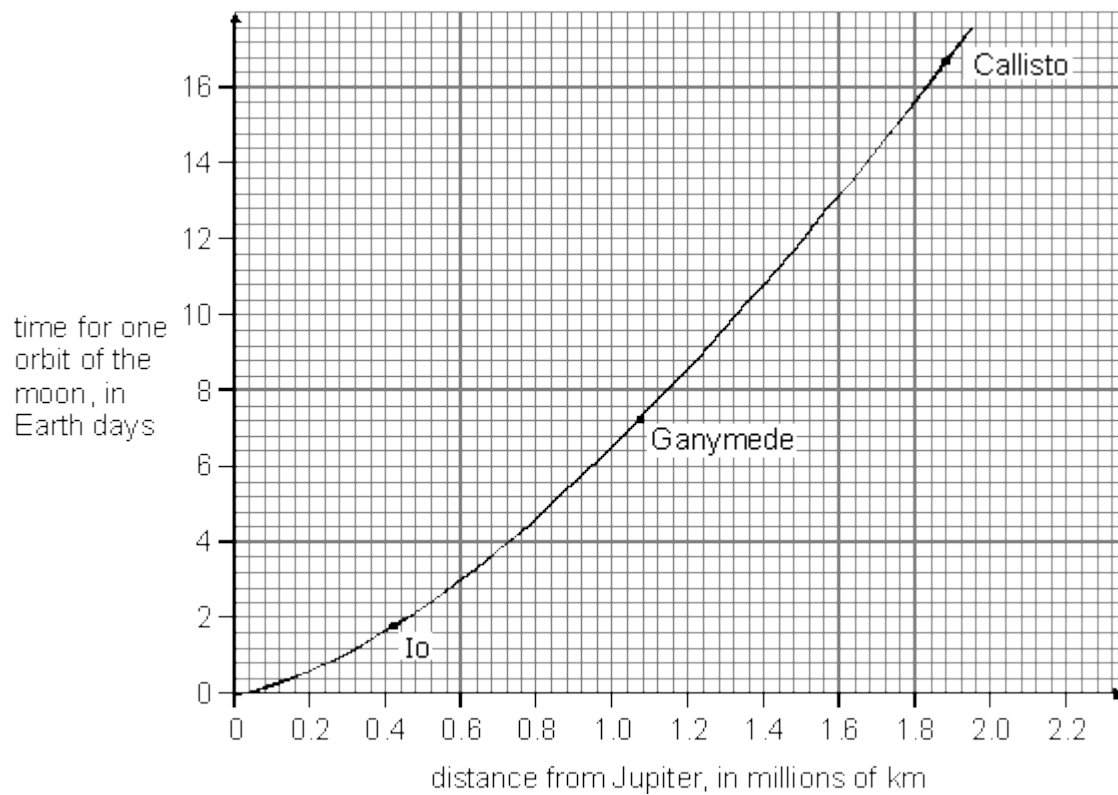
.....
.....

1 mark

- (b) The table shows the distances of the four moons from the centre of Jupiter, and the times of their orbits. Europa's distance has been left out.

| name of moon | distance from Jupiter, in millions of km | time for one orbit, in Earth days |
|--------------|--|-----------------------------------|
| Io | 0.42 | 1.8 |
| Europa | | 3.6 |
| Ganymede | 1.07 | 7.2 |
| Callisto | 1.88 | 16.7 |

The graph was plotted using the information in the table.



Use the graph to estimate Europa's distance from Jupiter.

..... millions of km

1 mark

(c) Galileo realised that Jupiter and its moons formed a model of our Solar System. In this model:

what did Jupiter represent?

what did the moons represent?

1 mark
Maximum 5 marks