

Astronomy

Question Paper 4

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| Level | Edexcel |
| Subject | Physics |
| Exam Board | GCSE(9-1) |
| Topic | Astronomy |
| Sub Topic | |
| Booklet | Question Paper 4 |

Time Allowed: 56 minutes

Score: /46

Percentage: /100

Exploring space

- 1 (a) The photograph shows an Apollo 12 astronaut walking on the Moon.



Complete the sentence by putting a cross (☒) in the box next to your answer.

Manned space crafts have landed on the Moon but have not yet landed on Mars.

One of the reasons is because

(1)

- A** the Moon is closer to Earth than Mars
- B** the Moon is closer to the Sun than Mars
- C** Mars is closer to the Earth than the Moon
- D** Mars is closer to the Sun than the Moon

- (b) A scientist compares the sizes of some objects in space.

Which of these is the smallest?

Put a cross (☒) in the box next to your answer.

(1)

- A** Jupiter
- B** the Milky Way galaxy
- C** the Moon
- D** the Sun

(c) Some scientists look for signs of water on other planets.

Suggest why they do this.

(1)

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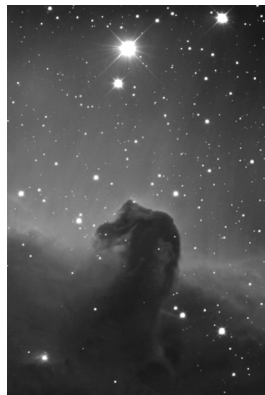
(d) The Earth is 150 000 000 km from the Sun.
It takes light 500 s to reach the Earth from the Sun.

Calculate the speed of light in km/s.

(3)

speed = km/s

(e) The photograph was taken using a powerful telescope on Earth.
It shows a nebula and many stars.



(i) Explain why photographs from telescopes in space show the nebula more clearly.

(2)

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- (ii) A nebula is a cloud of gas and dust where stars are formed.
A hot object forms when gas and dust in a nebula come together.

Explain why the gas and dust come together and form a hot object.

(2)

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(Total for Question 3 = 10 marks)

Stars and the Universe

2 (a) The photograph shows a nebula and many stars.



(i) A nebula is a cloud of gas and dust from which stars are formed.

Describe the energy changes involved when a main sequence star forms from gas and dust.

(3)

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(ii) Describe how the mass of a main sequence star will affect what the star finally becomes.

(3)

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The Solar System

3 The diagram shows four moons which orbit Jupiter.



(a) (i) Complete the sentence by putting a cross (☒) in the box next to your answer.

Jupiter is

(1)

- A a comet
- B a galaxy
- C a planet
- D a universe

(ii) Galileo used a new invention to observe these moons.

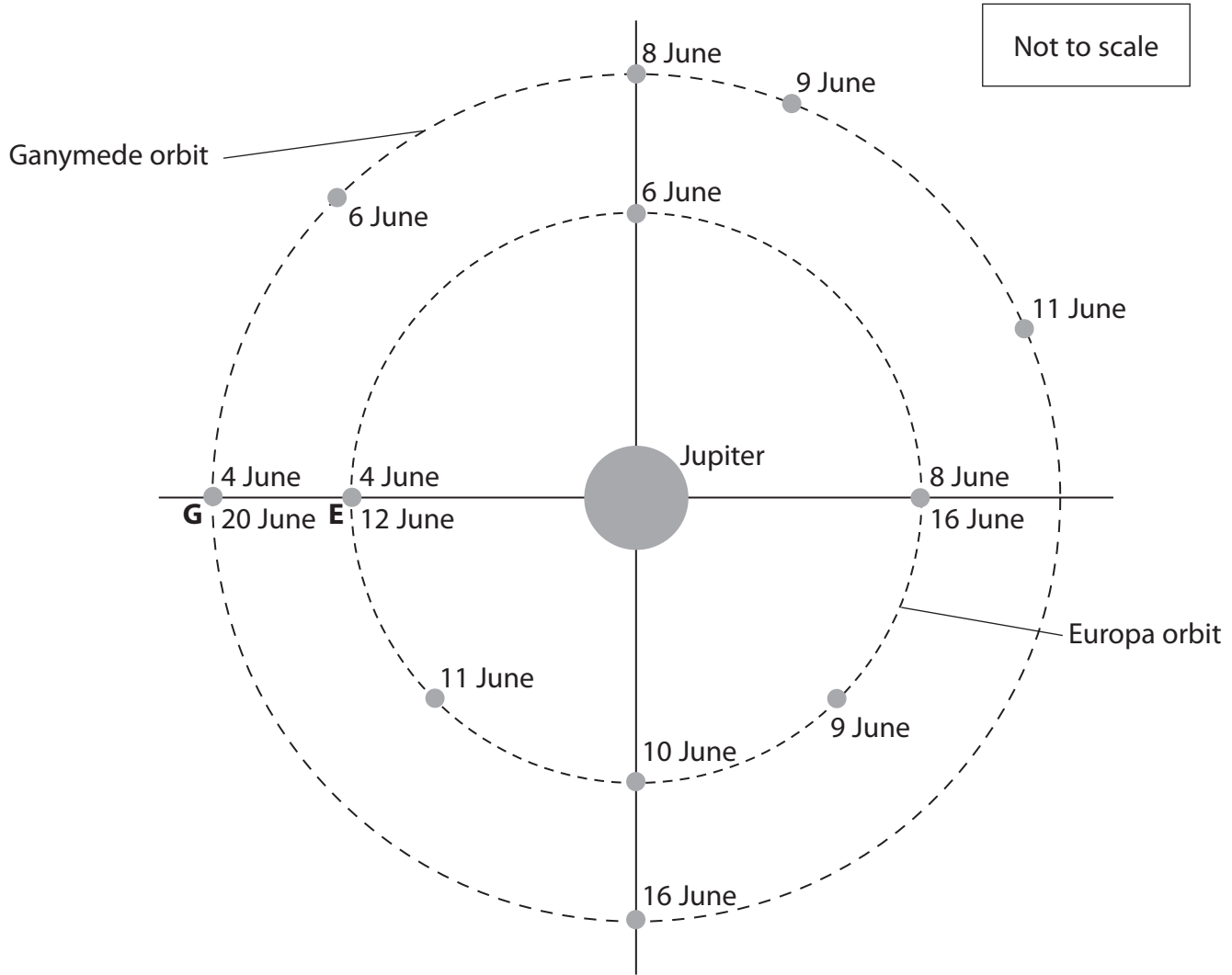
The invention he used was called a

(1)

(b) The diagram shows the moons Europa (E) and Ganymede (G) in orbit around Jupiter.

The radius of Europa's orbit is 671 000 km.

The radius of Ganymede's orbit is 1 070 000 km.



The positions of the moons on some dates are marked.

(i) On which one of the marked dates were the moons closest together?

(1)

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(ii) Use information from the diagram to calculate the time for Ganymede to complete one orbit of Jupiter.

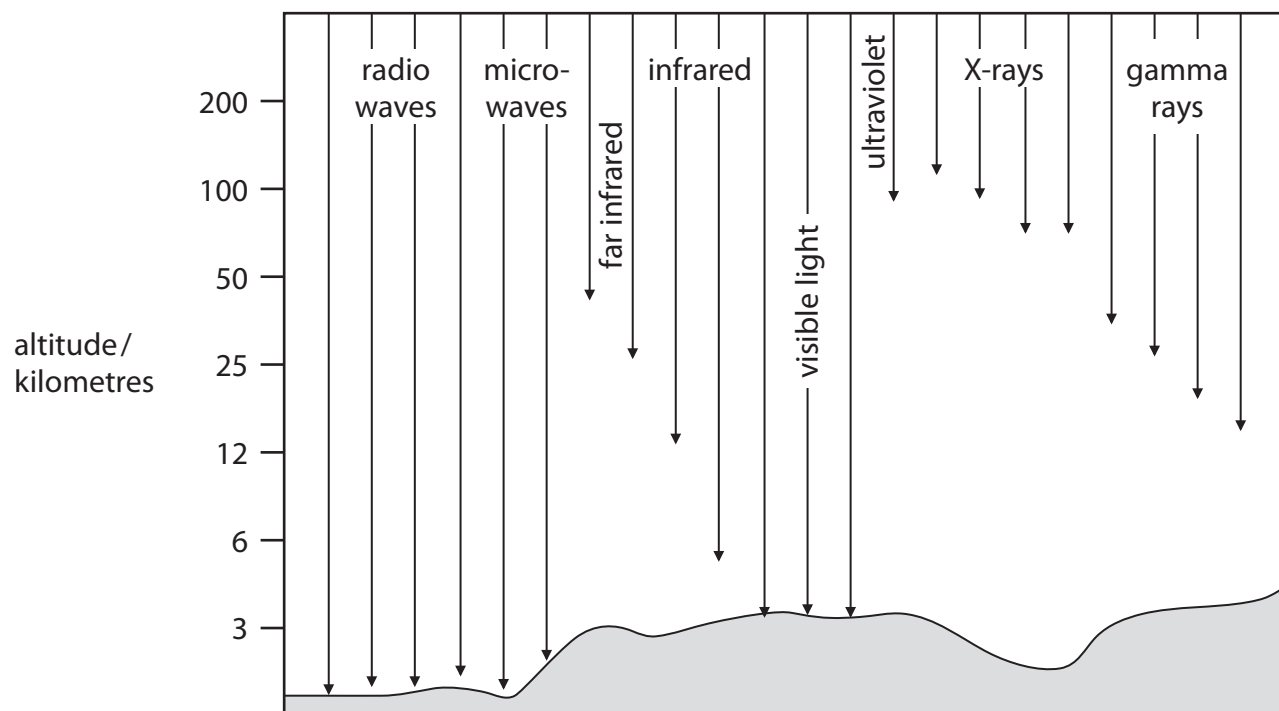
(1)

time for one orbit = days

The Solar System

4 Not all electromagnetic radiation coming from space reaches the Earth's surface.

The diagram shows how far radiation from each part of the electromagnetic spectrum travels down through the atmosphere.



(a) (i) Name **one** type of radiation that can reach the surface of the Earth from stars.

(1)

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(ii) Name **one** type of radiation from stars that cannot be detected at the Earth's surface but can be detected using satellites.

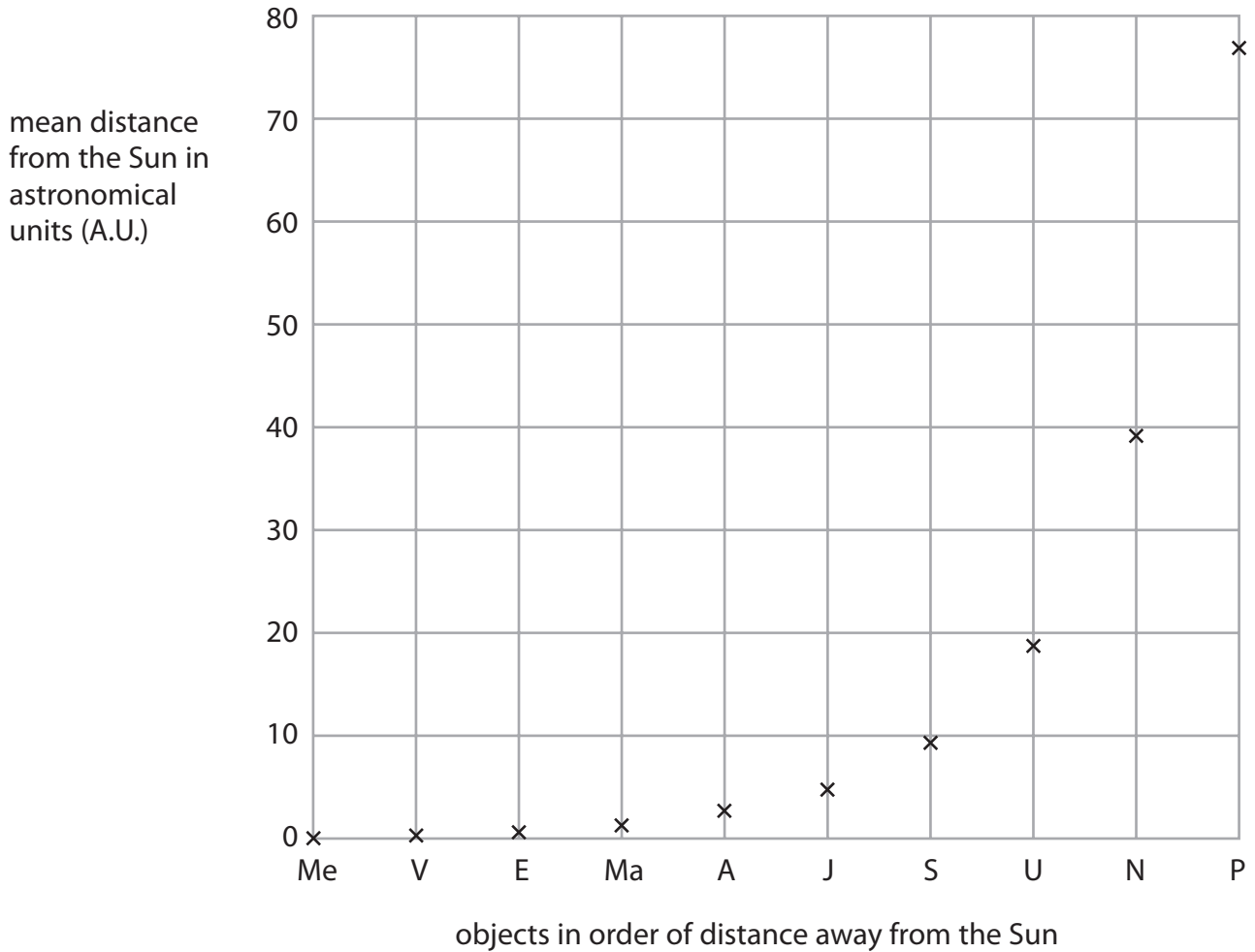
(1)

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(b) Bode, a scientist, found a rule predicting the distance of objects from the Sun.

The chart shows the mean distances from the Sun predicted by Bode’s rule.



[Me – Mercury; V – Venus; E – Earth; Ma – Mars; A – Asteroid Belt; J – Jupiter; S – Saturn; U – Uranus; N – Neptune; P – Pluto]

(i) Read, from the chart, the predicted values for the distance from the Sun to Neptune and from the Sun to Pluto.

(2)

Sun to Neptune.....

Sun to Pluto.....

