

Name of the Student: _____

Max. Marks : 16 Marks

Time : 16 Minutes

Q1.

(i) Figure 13 shows a student sitting on the shore of a lake watching ripples on the surface of the water moving past a toy boat.

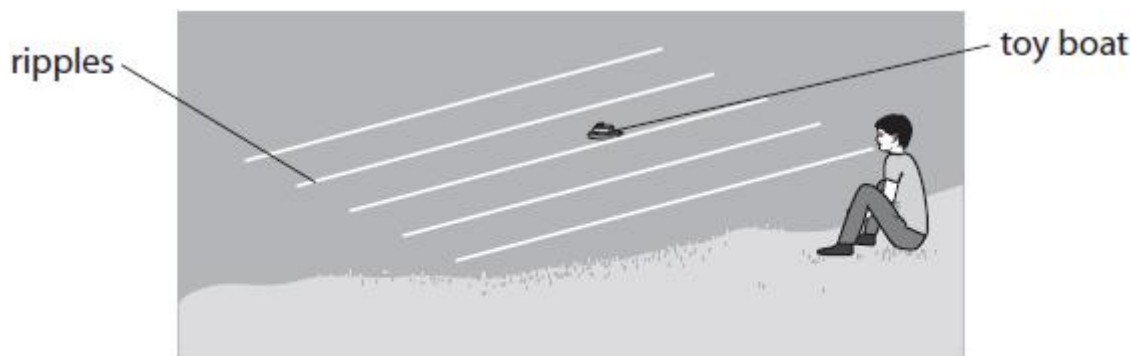


Figure 13

The student has a stopwatch.

Describe how the student could determine the frequency of the ripples on the lake.

(3)

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(ii) The speed of a water wave is 1.5 m/s.

The frequency of the wave is 0.70 Hz.

Calculate the wavelength of this wave.

Use the equation

$$v = f \times \lambda$$

(2)

wavelength = m

(iii) Water waves are transverse waves.

Describe the difference between transverse waves and longitudinal waves.

(2)

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(Total for question = 7 marks)

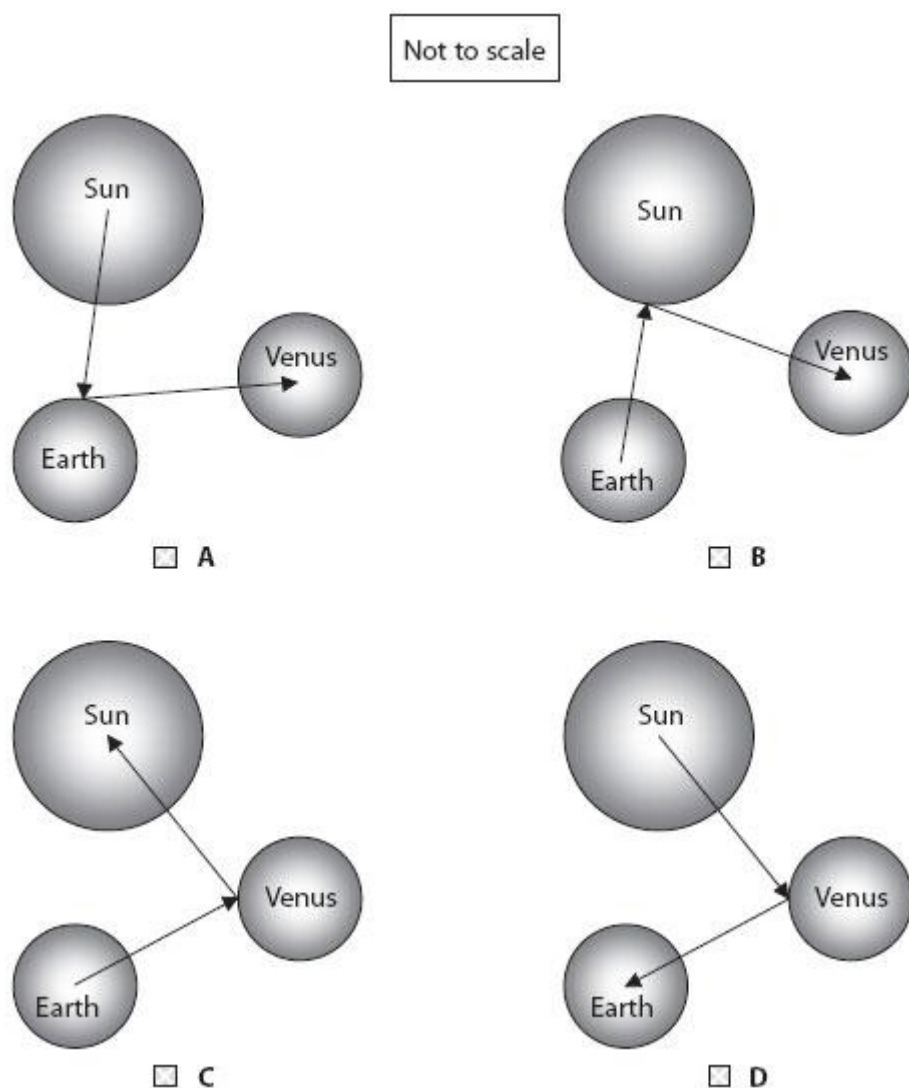
Q2.

(a) Galileo was one of the first scientists to use a telescope to study Venus.

(i) Which of these diagrams best shows how light waves enable us to see Venus?

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

(1)



(ii) Use words from the box to complete the sentences.

(2)

asteroids	comets	geocentric	heliocentric
	moons	particle	stars

Galileo also used his telescope to observe the of Jupiter.

His observations provided evidence to support the model of the Solar System.

(iii) Describe how a reflecting telescope is different from the simple telescope which Galileo used.

(2)

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(b) (i) The diagram represents a wave.



State the amplitude and wavelength of the wave.

(2)

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(ii) 20 waves are sent out in 4 seconds.

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

The frequency of the wave is

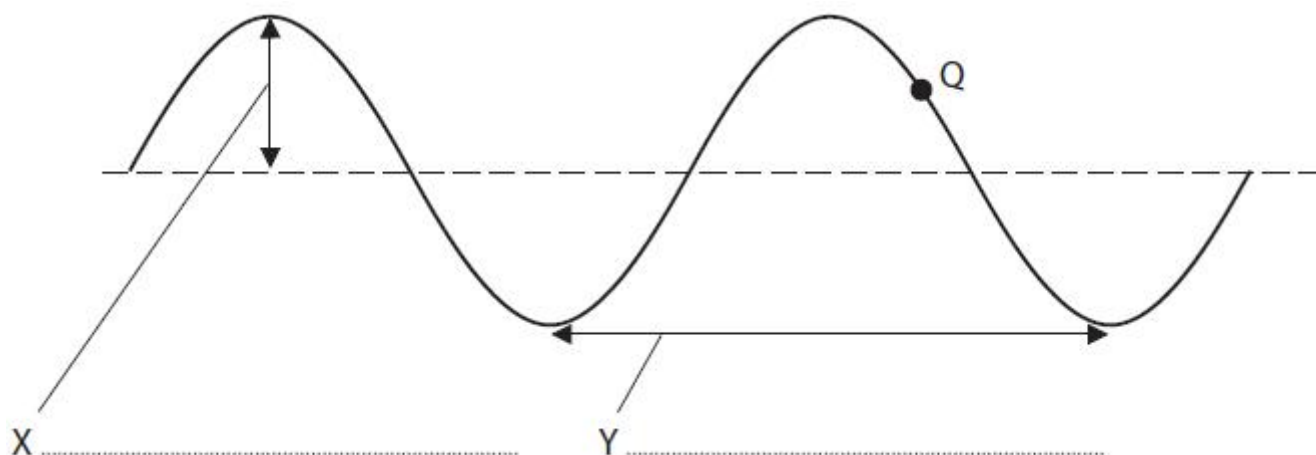
(1)

- ☐ A 0.2 Hz
- ☐ B 5 Hz
- ☐ C 20 Hz
- ☐ D 80 Hz

(Total for Question is 8 marks)

Q3.

The diagram shows a transverse wave.



(i) Use words from the box to label the distances X and Y.

amplitude	frequency	magnification	speed	wavelength
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(2)

(ii) Q is a particle in the wave.

Which of these shows the way in which particle Q moves?

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

(1)

- ☐ A
- ☒ B
- ☐ C
- ☐ D

Q4.

A man throws a stone into a pond.

On the other side of the pond, the water becomes very shallow.

In the shallow water, the wave is slower but the frequency does not change.

State what happens to the wavelength when a wave reaches the shallow water.

(1)

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(Total for question = 1 mark)