Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : Waves

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

A man throws a stone into a pond.

Devise a method of measuring the frequency of the waves.

(2)

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(Total for question = 2 marks)

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Q2.

Figure 2 shows water waves spreading out from a source.

A student measures the wavelength of the waves.

He uses a ruler to measure the distance from one crest to the next crest.

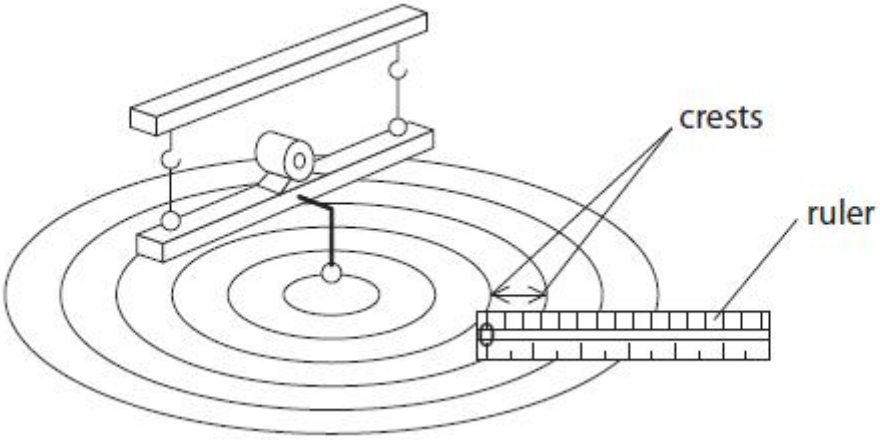


Figure 2

Explain how to improve the student's method for measuring the wavelength.

(2)

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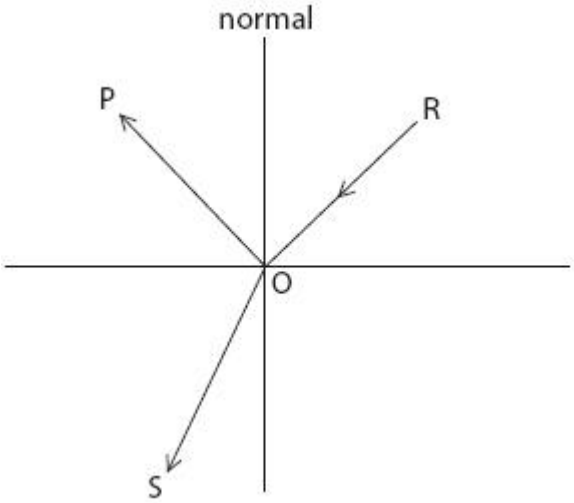
(Total for question = 2 marks)

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Q3.

When light strikes a glass surface it can be both refracted and reflected.

(a) The diagram shows the possible paths for a ray of light which strikes a surface at the point O.



(i) Which of the lines show the possible path of a ray of light passing from air into glass?
Put a cross ( ) in the box next to your answer.

(1)

☒ **A** POS

☒ **B** POR

☒ **C** ROP

☒ **D** ROS

(ii) The diagram shows a water wave going from deep water into an area of much shallower water. The wave is refracted at the boundary between deep water and shallow water.

Which row of the table is correct for what happens when the wave is refracted?
Put a cross ( ) in the box next to your answer.

(1)

	speed	direction
☐ **A**	stays the same	changes
☐ **B**	stays the same	stays the same
☐ **C**	changes	changes
☐ **D**	changes	stays the same

(b) In 1610 Galileo used a refracting telescope to observe the planet Jupiter..

(i) Explain how a refracting telescope produces a magnified image of Jupiter.

(3)

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(ii) In 1610, the geocentric model of the Solar System was commonly accepted.

Explain how Galileo's observations contradicted the geocentric model.

(3)

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(c) Light travels the 150 million km from the Sun to the Earth in about 500 s.
It takes about 2100 s for light to reach the Earth from Jupiter.
Using this information, calculate the approximate distance of Jupiter from the Earth.

(2)

distance of Jupiter from the Earth =.....million km

(Total for Question = 10 marks)

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Q4.

Figure 13 shows part of the inside of the Earth below the surface.

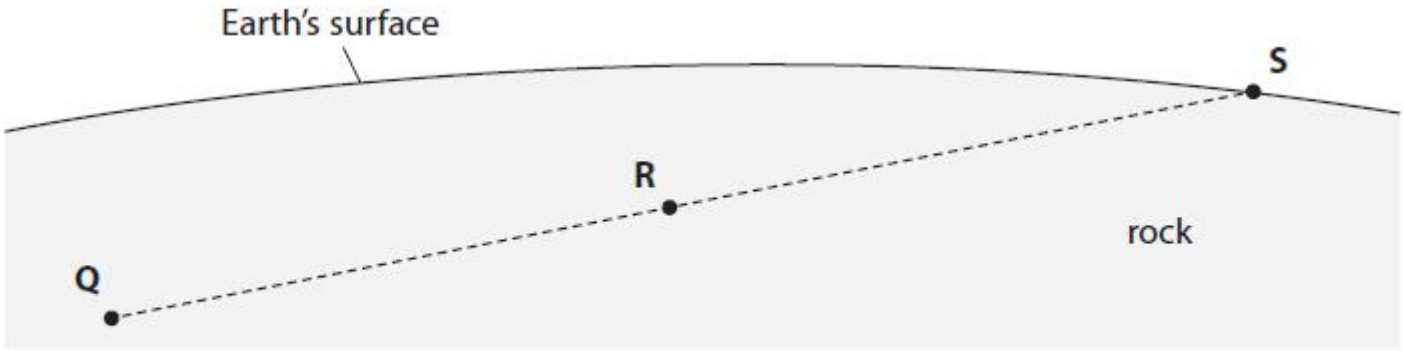


Figure 13

An earthquake starts at **Q**.

A seismic wave travels from **Q** to **S**.

The seismic wave is a longitudinal wave.

(i) Draw arrows on Figure 13 to show how the rock at **R** moves when the seismic wave passes through **R**.

(2)

(ii) The frequency of the seismic wave is 12 Hz.

The wave speed of the seismic wave is 7 km / s.
Calculate the wavelength of the seismic wave, in metres.
Use the equation

$$\text{wavelength} = \frac{\text{wave speed}}{\text{frequency}}$$

(3)

wavelength = ... m

(Total for question = 5 marks)

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