Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Q1.

The students produce a different wave.
This wave has a frequency of 1.7 Hz and a wavelength of 8.0 cm.

Calculate the speed of this wave.

(2)

.....

Q2.

Figure 8 shows part of the inside of the Earth below the surface.

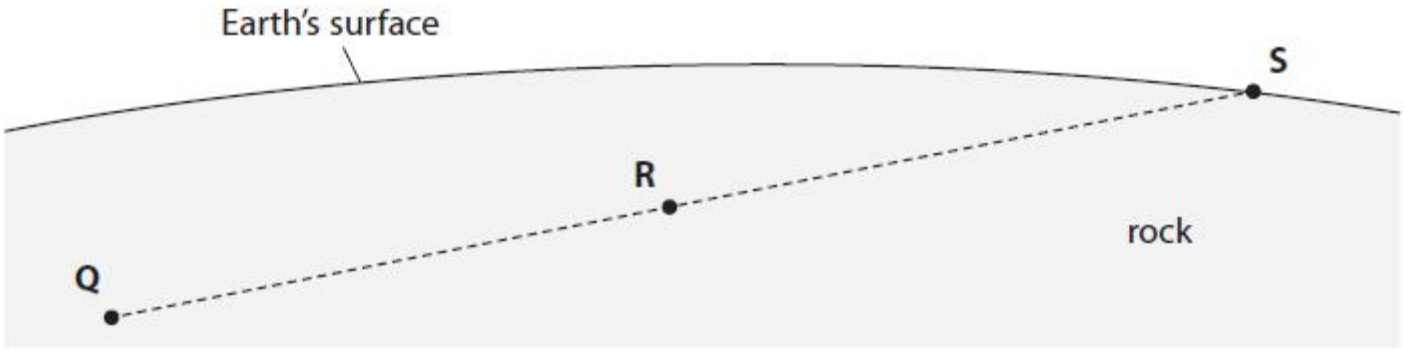

Figure 8

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 8 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

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

(3)

wavelength = ... m

(Total for question = 5 marks)

Q3.

A sound wave in air travels a distance of 220 m in a time of 0.70 s.

(i) State the equation linking speed, distance and time.

(1)

(ii) Calculate the speed of the sound wave in air.

(2)

wave speed = ... m/s

(Total for question = 3 marks)

Q4.

This question is about waves.

Figure 3 is a diagram of a **water wave** in a ripple tank.

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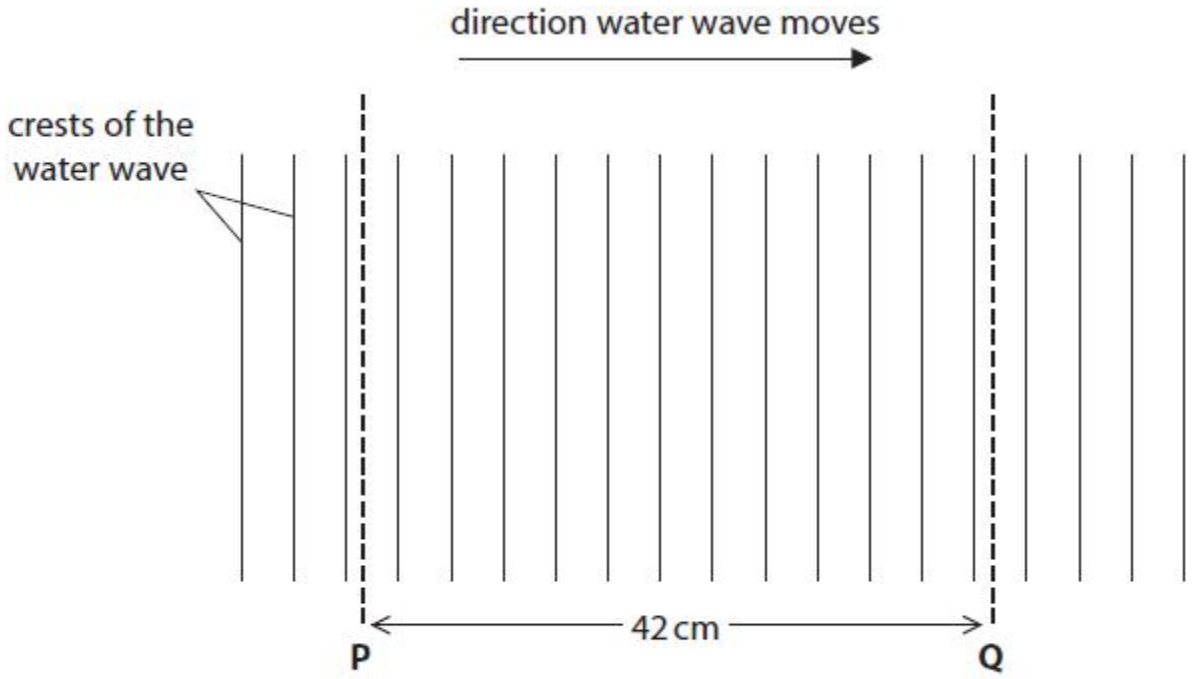

Figure 3

(i) State the number of crests of the wave between **P** and **Q**.

(1)

number of crests = ...

(ii) The distance between **P** and **Q** is 42 cm.

Calculate the wavelength of the water wave in Figure 3.

(2)

wavelength = ... cm

(iii) Describe how a student could determine the wave speed of the water wave in Figure 3.

(3)

.....

.....

.....

.....

.....

.....

(Total for question = 6 marks)

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Q5.

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)

.....

.....

(Total for question = 1 mark)

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