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

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

Q1.

(a) A man uses a dog whistle to call his dog.
The whistle uses ultrasound.

(i) The dog can hear the whistle but the man cannot.
Explain why the dog can hear the whistle but the man cannot hear the whistle.

(2)

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(ii) The dog is 140 m away from the man.
The ultrasound takes 0.42 s to travel from the man to the dog.
Calculate the speed of ultrasound.
State the unit.

(3)

speed of ultrasound =..... unit = ...

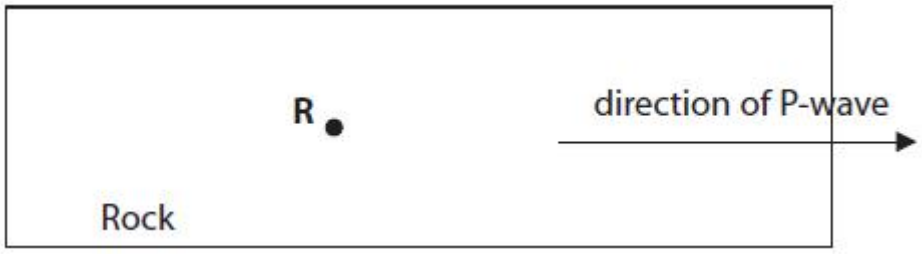
(b) (i) An earthquake P-wave has a frequency of 15 Hz.

Complete the sentence by putting a cross (☒) in the box next to your answer.
The earthquake P-wave is

(1)

- ☐ **A** an infrasound wave
- ☐ **B** an ultrasound wave
- ☐ **C** an electromagnetic wave
- ☐ **D** a transverse wave

(ii) The diagram shows the direction of an earthquake P-wave in some rock.



Draw arrows on the diagram to show how the piece of rock, labelled **R**, moves.

(2)

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(c) Earthquakes occur when two tectonic plates move against each other.
Explain what causes the tectonic plates to move.

You may draw a diagram if it helps your answer.

(2)

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(Total for Question = 10 marks)

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Q2.

Sonar is an example of a use of ultrasound.

Figure 1 shows the depth of the sea, measured using sonar, at different distances from the shore.

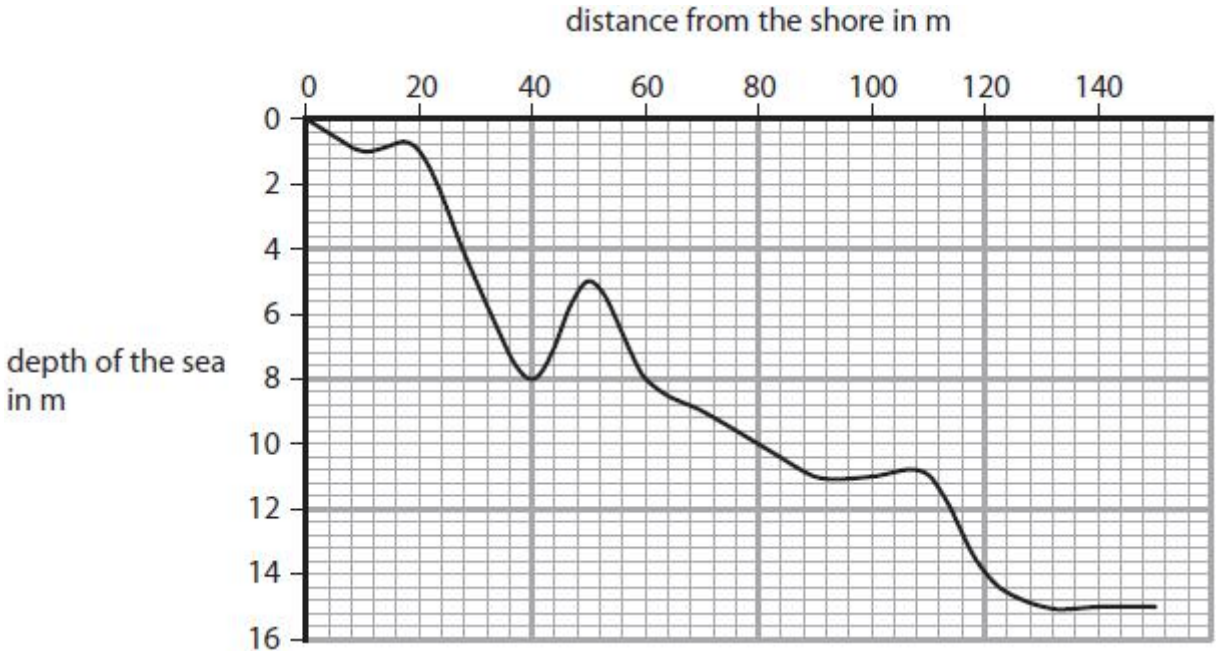


Figure 1

A technician on a boat uses sonar pulses to measure the depth of the sea when the boat is 120 m from the shore.

Calculate the **total** time of travel for the sonar pulse used to make this measurement.

The speed of the sonar pulse in seawater is 1600 m/s.

(4)

time of travel = ... s

(Total for question = 4 marks)

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Q3.

When white light crosses the boundary between air and glass, it can split up into the colours of the spectrum. Explain, in terms of speed, why the light behaves like this.

(3)

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(Total for question = 3 marks)

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