

Name of the Student: \_\_\_\_\_

Max. Marks : 17 Marks

Time : 17 Minutes

Q1.

(a) Dolphins emit sounds at many different frequencies.



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

A dolphin can produce sounds with a frequency of more than 20 kHz.  
These sounds are called

(1)

- A infrasound waves
- B microwaves
- C supersonic waves
- D ultrasound waves

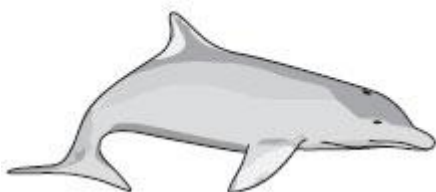
(ii) A dolphin is near to a group of fish.

Describe how a dolphin uses high frequency sound to locate the position of the fish.

You may add to the diagram to help with your answer.

(3)

DOLPHIN



FISH



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Q2.

Figure 8 represents a sound wave coming from a loudspeaker and shows the effects on particles of the air at one instant in time.

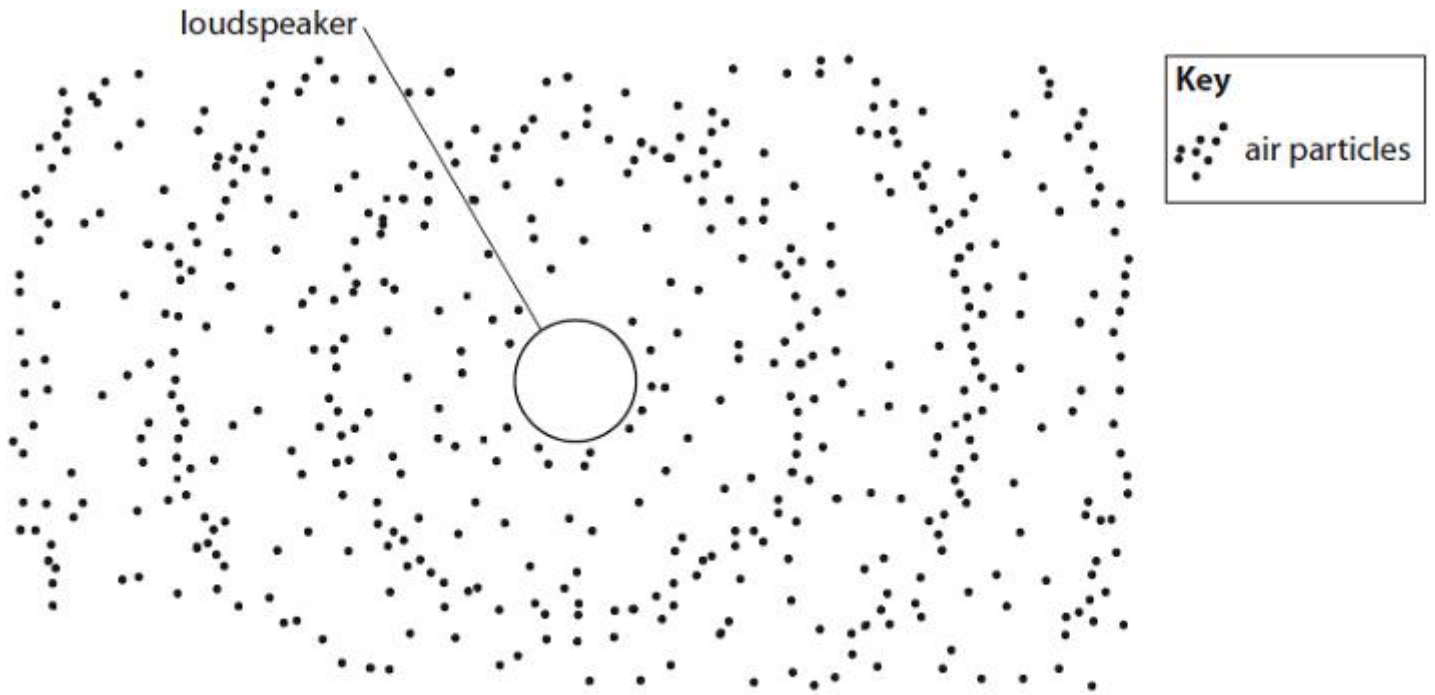


Figure 8

(i) Draw and label a distance of one wavelength in Figure 8.

(1)

(ii) Describe the motion of the particles as the wave travels through the air.

(2)

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(Total for question = 3 marks)

Q3.

(a) Complete the sentence by putting a cross (  ) in the box next to your answer.  
Waves from an earthquake are

(1)

- A** transverse waves only
- B** electromagnetic waves only
- C** both transverse and electromagnetic waves
- D** both transverse and longitudinal waves

(b) The Earth's surface is made up of many tectonic plates.  
The interior of the Earth is a source of thermal energy.  
Describe how this thermal energy can cause earthquakes.  
You may draw a labelled diagram to help with your answer.

(3)

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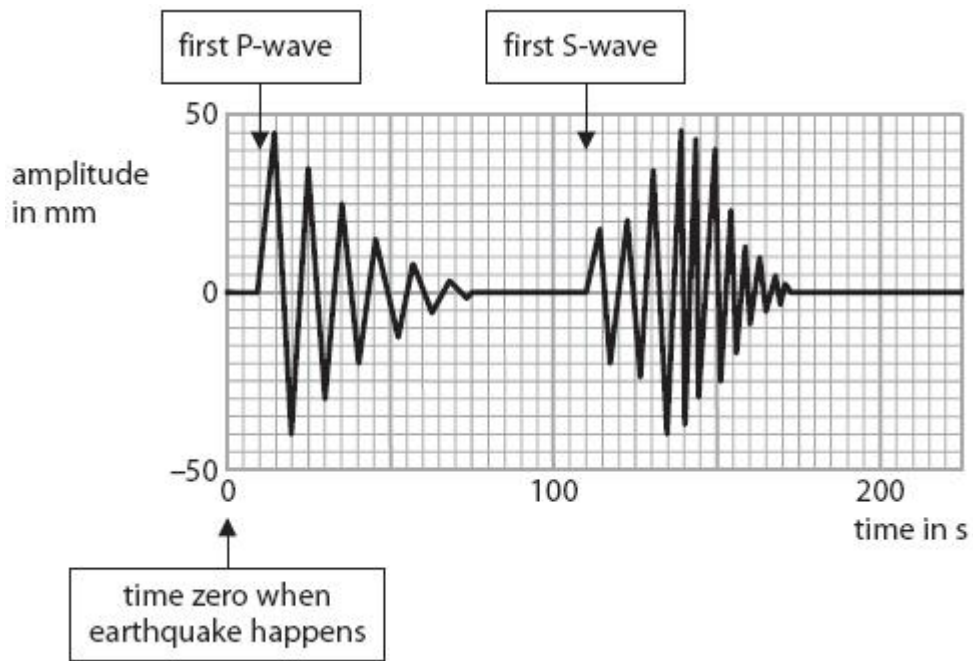
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(c) The chart shows the arrival of earthquake waves at an earthquake monitoring station.



The S – P time (S minus P time) for earthquake waves is the time difference between the arrival of the first P wave and the first S wave.

Use the chart to estimate the S – P time for the earthquake waves shown.

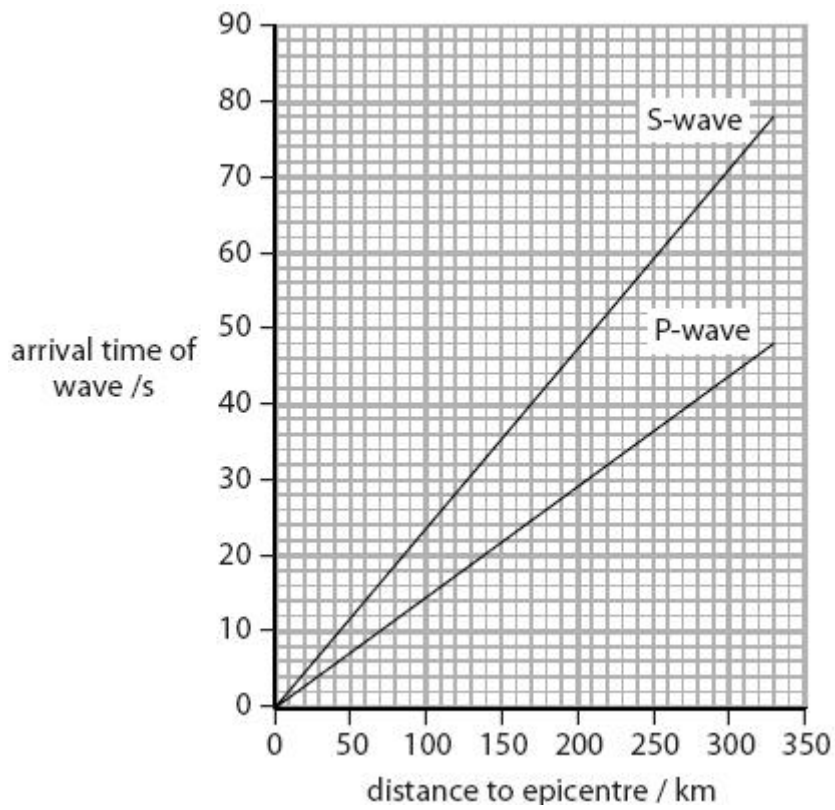
(2)

S – P time = .....seconds

(d) The location of an earthquake is known as an epicentre.

The S – P time for earthquake waves can be used to estimate the distance between the monitoring station and the epicentre.

The graph shows how the arrival times of S and P waves are related to their distances from the epicentre of an earthquake.



The S – P time for a particular earthquake was 20 seconds.

Use the S – P time to estimate the distance between the monitoring station and the epicentre of this earthquake.

(2)

distance to epicentre of earthquake = .....km

(e) Many earthquakes and volcanoes are linked to the production of infrasound waves.

Describe what is meant by **infrasound waves**.

(2)

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**(Total for Question = 10 marks)**