Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: GCSE Triple Science_Waves (SDQ)

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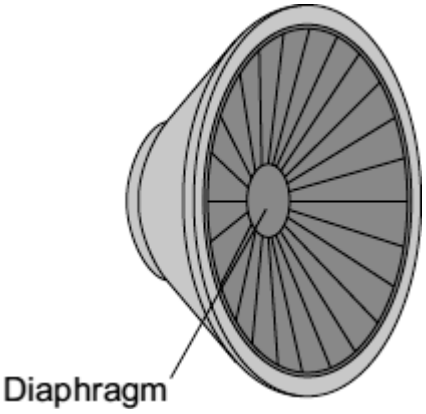
Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

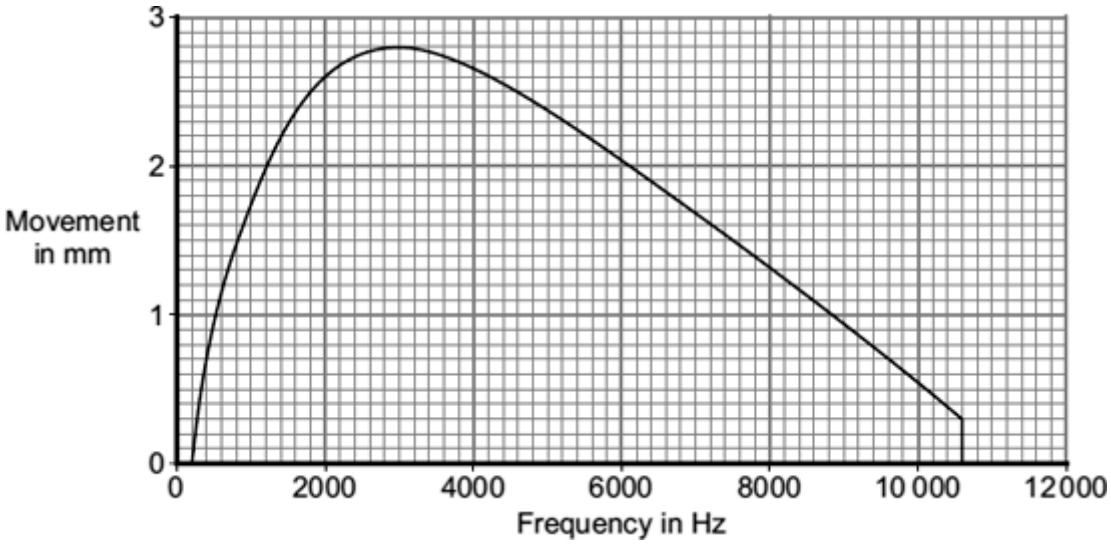
Q1.

The diaphragm of a loudspeaker moves in and out.



A team of scientists investigated loudspeakers.

The scientists measured the size of the movement of the diaphragm for signals of different frequencies.
They kept all the other variables constant.
The graph shows the average results for a large number of tests on one of the loudspeakers.



(a) What is the frequency of the highest pitched sound which this loudspeaker produces?

Frequency = _____ Hz

(1)

(b) The greater the movement of the diaphragm, the greater the amplitude of the sound produced.

What is the frequency of the loudest sound which this loudspeaker produces?

Show clearly on the graph how you get to your answer and then complete this answer space.

Frequency = _____ Hz

(2)

(c) Can this loudspeaker produce the full range of sound which most people can hear?

Put a tick (✓) in the box next to your answer.

Yes ☐ No ☐

Explain the reason for your answer.

_____

_____

_____

_____

(2)

(d) Use **one** word to complete the sentence.

Repeating tests a large number of times and taking the average of the results

improves the _____ .

(1)

(e) Why did the scientists keep all the other variables constant?

_____

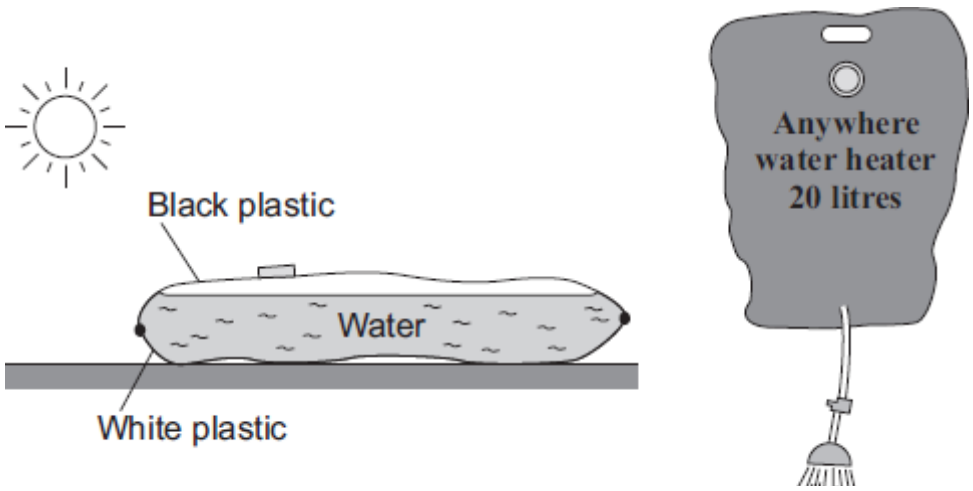
_____

(1)

(Total 7 marks)

Q2.

The diagram shows a simple type of portable shower. The water container is a strong plastic bag that is black on one side and white on the other. To warm the water, the bag is placed on the ground in direct sunlight, with the black side facing the Sun.



(a) (i) Name the process by which heat is transferred from the Sun to the outside of the bag.

_____

(1)

(ii) Explain why the black side of the bag and not the white side should face the Sun.

_____

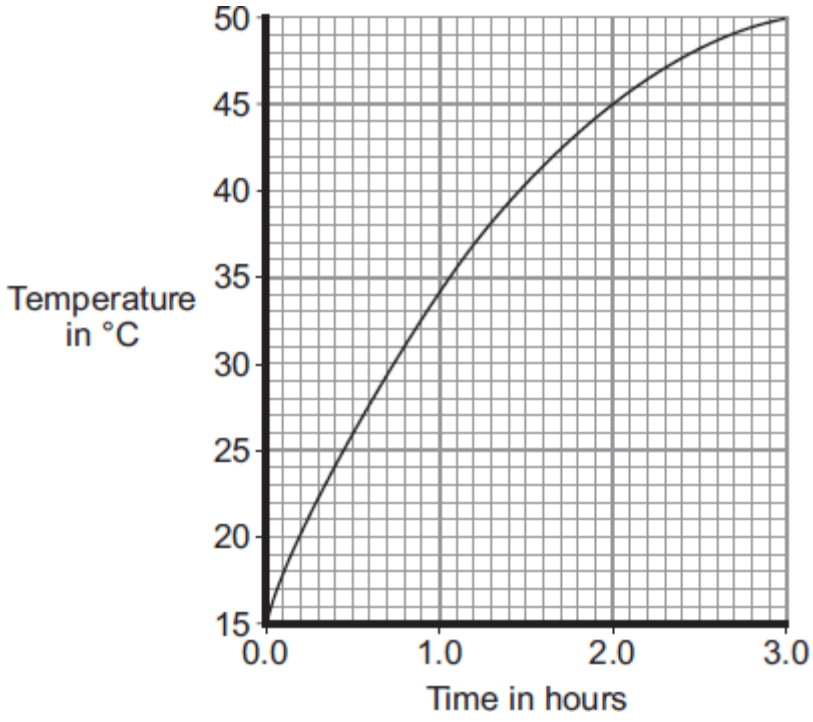
_____

_____

_____

(2)

(b) The graph shows how the temperature of the water inside a full bag increases after the bag is placed outside on a sunny day.



(i) How long does it take for the water to reach 37 °C?

_____

(1)

(ii) Describe how the temperature of the water changes during the three hours.

_____

_____

(1)

(c) A different manufacturer makes the same type of portable shower but uses a bag with a larger surface area. The bag is made from the same coloured plastics and holds the same amount of water.

(i) To compare the efficiency of the two bags at heating water, several variables need to be controlled.

Name **two** variables that need to be controlled.

1. _____

2. _____

(2)

(ii) The second bag has a larger surface area.
Draw a line on the graph to show how the temperature of the water inside the second bag would change over the first hour.
Assume that the two bags are tested in exactly the same way.

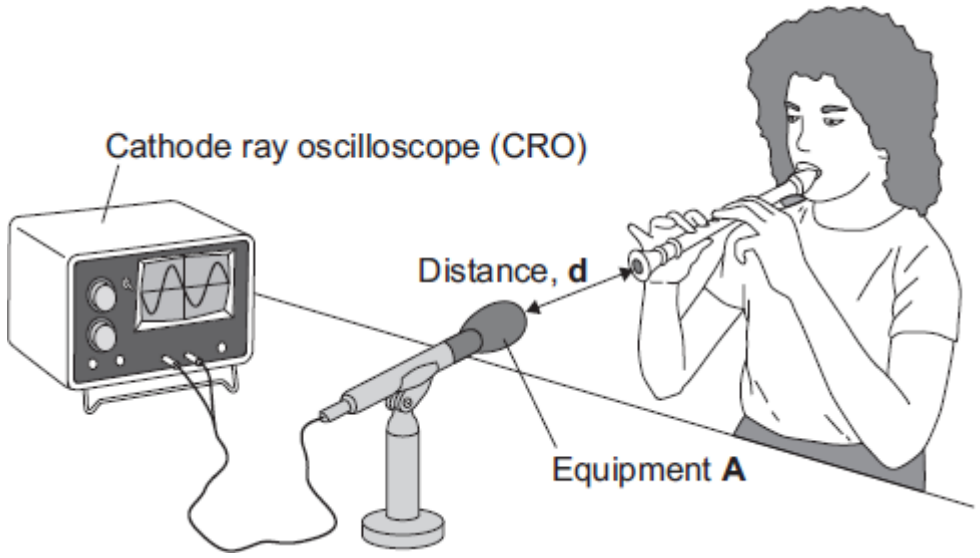
(1)

(Total 8 marks)

Q3.

A group of students investigates sound waves.

The diagram shows part of their investigation.



(a) Identify the equipment labelled **A**.

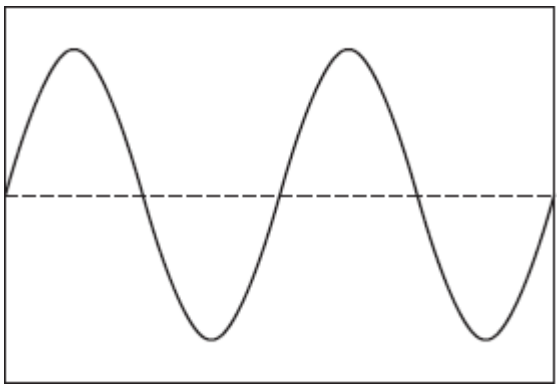
_____

(1)

(b) The student plays the same note in the same way at different distances from equipment **A**.

Another student records the amplitude of the wave shown on the cathode ray oscilloscope (CRO).

(i) Label this wave to show its amplitude.



(1)

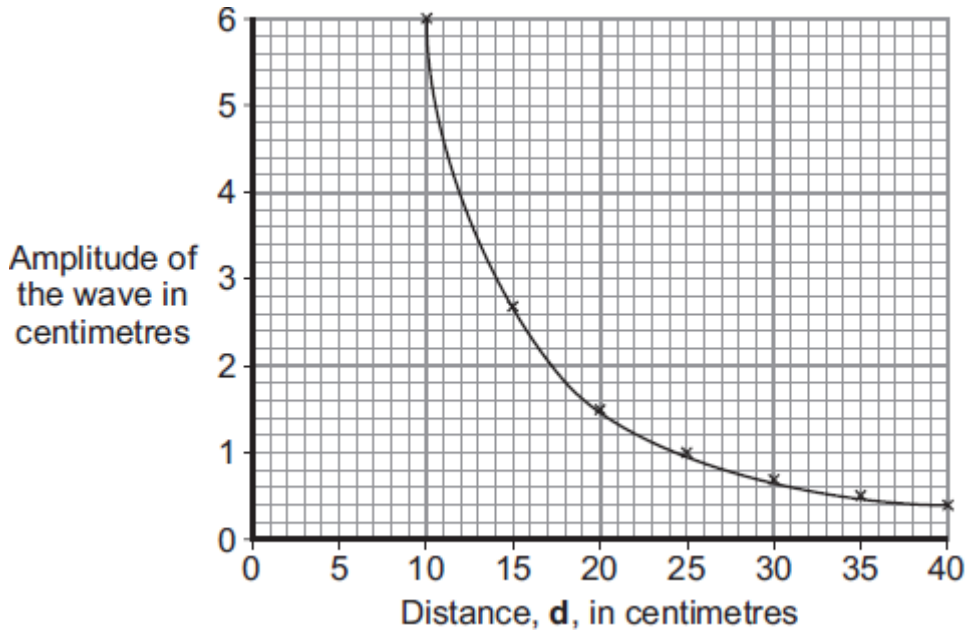
(ii) Complete the sentence.

Increasing the amplitude of a sound wave will increase the _____

of the sound.

(1)

(c) The graph shows the students' average results from several sets of measurements.



Use the graph to find the distance, **d**, in centimetres, at which the average amplitude is likely to be 2 centimetres.

Distance = _____ cm.

(1)

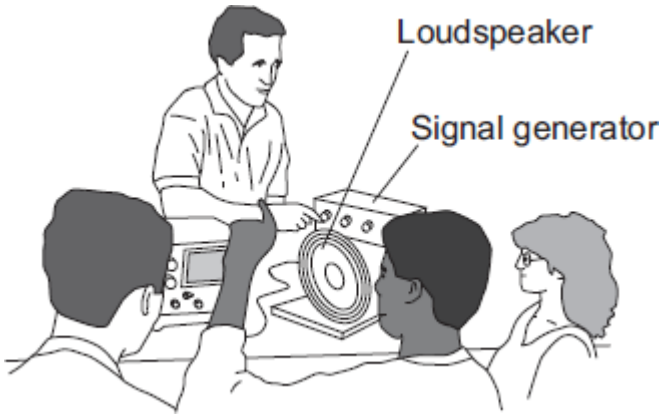
(d) Write a conclusion for this investigation.

_____

_____

(1)

(e) A physics teacher uses a signal generator and a loudspeaker to demonstrate the range of hearing of a group of students.



What is the range of frequencies most humans can hear?

Most humans can hear from _____ Hz to _____ Hz.

(2)

(Total 7 marks)