Sound – 2021 IGCSE 0625

1. Nov/2021/QPaper_11/No.17

Which row gives the correct description of a sound wave?

	action of wave	type of wave
A	transfers energy without transferring matter	longitudinal
B	transfers energy without transferring matter	transverse
C	transfers matter without transferring energy	longitudinal
D	transfers matter without transferring energy	transverse

2. Nov/2021/QPaper_11,12,13,21,22&23/No.24

What is ultrasound?

A sound waves that are so loud that they damage human hearing

B sound waves that are too high-pitched for humans to hear

C sound waves that are too low-pitched for humans to hear

D sound waves that are too quiet for humans to hear

3. Nov/2021/QPaper_11/No.23

Which row gives the typical values of the speed of sound at room temperature in the materials stated?

	speed of sound / m/s		
	air	water	iron
A	340	1500	5100
B	340	5100	1500
C	5100	1500	340
D	3.0×10^8	3.0×10^8	3.0×10^8

4. Nov/2021/QPaper_33/No.7

A group of students are taking measurements so they can calculate the speed of sound.

The students and their teacher are outside.

The teacher holds two blocks of wood and the students have stop-watches.

The teacher stands a long distance from the students, as shown in Fig. 7.1.

All the students can see the teacher clearly.

Fig. 7.1 (not to scale)

The teacher claps the two blocks of wood together to produce a loud sound. The students measure the time interval between seeing the teacher clap and hearing the sound.

(a) Fig. 7.2 shows three of the stop-watches. The stop-watches show three of the values recorded for the time interval.

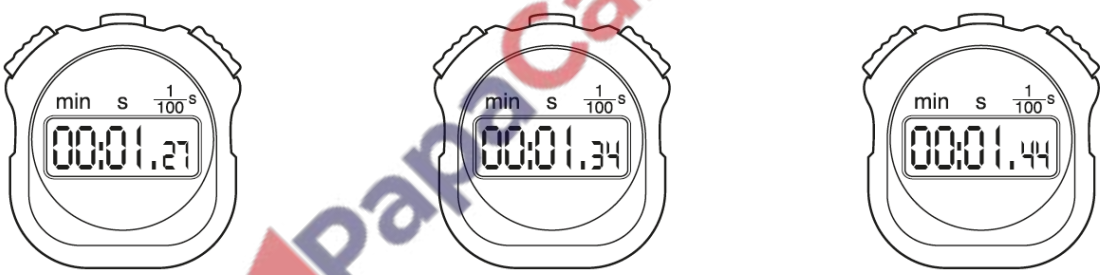

Fig. 7.2

Calculate the average value for the time intervals shown on the stop-watches in Fig. 7.2.

average time interval = ... s [3]

(b) **(i)** State the name of the instrument needed to measure the distance between the teacher and the students.

..... [1]

(ii) The distance between the teacher and the students is 415 m.

The average time for the sound to travel between the teacher and the students is 1.29 s.

Calculate the speed of sound.

speed of sound = ... m/s [3]

[Total: 7]

5. Nov/2021/QPaper_42/No.6

Fig. 6.1 shows particles of a material in which a sound wave is travelling.

Fig. 6.1 (not to scale)

(a) On Fig. 6.1, mark:

(i) the centre of a compression with the letter C [1]

(ii) the centre of a rarefaction with the letter R [1]

(iii) one wavelength with a double-ended arrow. [1]

(b) Circle **one** value from the list which is the speed of sound in water.

15 m/s **150 m/s** **1500 m/s** **15 000 m/s** **150 000 m/s** **1 500 000 m/s** [1]

(c) The wavelength of a sound wave in water is 12 cm.

Calculate the frequency of this sound wave using your value from **(b)**.

frequency = ... [3]

(d) State and explain whether the sound in **(c)** is ultrasound.

statement .....

explanation .....

.....

.....

[2]

[Total: 9]

6. Nov/2021/QPaper_43/No.6

(a) Describe an experiment to determine the speed of sound in air. State the apparatus you need, details of how to take measurements and how to calculate the speed of sound in air.

You may use the space below to draw a **labelled** diagram as part of your answer.

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..... [5]

(b) Sound waves from a television are diffracted through doorways. Light waves from a television are **not** diffracted through doorways.

Suggest why light waves and sound waves behave differently in this situation.

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..... [2]

[Total: 7]