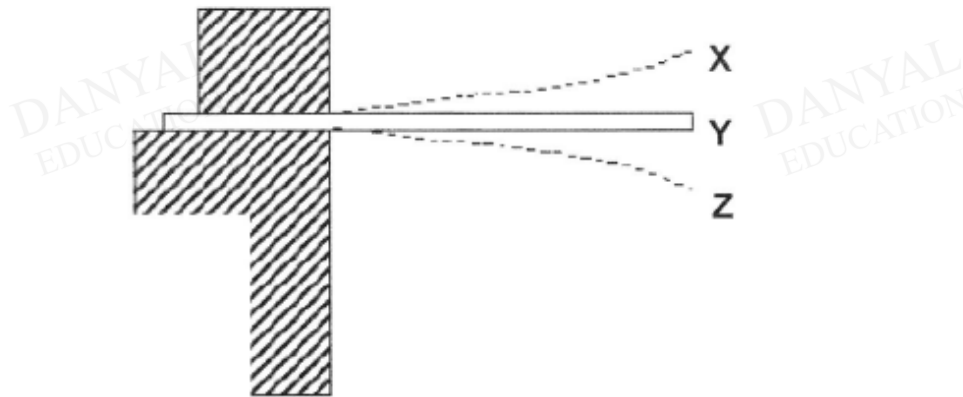## O Level Pure Physics MCQs

Sound Test 1.0

Q1

The diagram shows a ruler clamped at the end of a bench, with a length of the ruler projecting to position **Y**. The end of the ruler was pushed down to **Z** and then released. The ruler vibrated for a while between **Z** and **X**, emitting a sound wave of frequency 50 Hz.
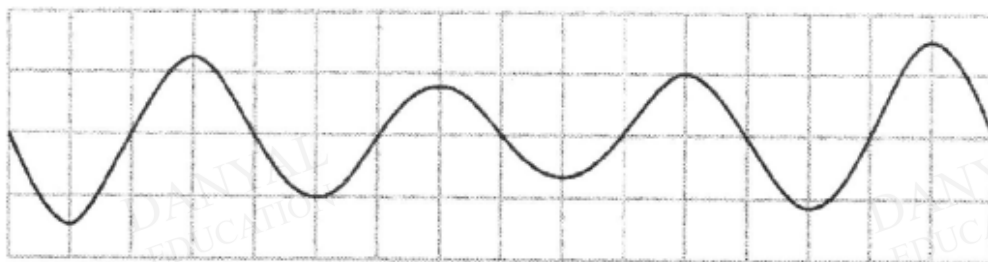

How long did it take for the end of the ruler to move from **Z** to **X**?

A   0.010 s
B   0.020 s
C   25 s
D   50 s

Q2

The waveform of a sound appears on an oscilloscope as shown.

Which of the following correctly describes the changes in the sound?

	pitch	loudness
A	increases and then decreases	decreases and then increases
B	decreases and then increases	remains the same
C	increases and then decreases	remains the same
D	remains the same	decreases and then increases

1

Q3

A sonic 'tape measure' is used to measure the distance of a place. In measuring a place of distance 1280 m away, it transmits a sound pulse and received the echo 8.0 s later. What is the speed of sound measured?

A   160 m/s   B   250 m/s
C   320 m/s   D   400 m/s

Q4

Fig. 28.1 shows a man standing between two cliffs. He claps his hands once.

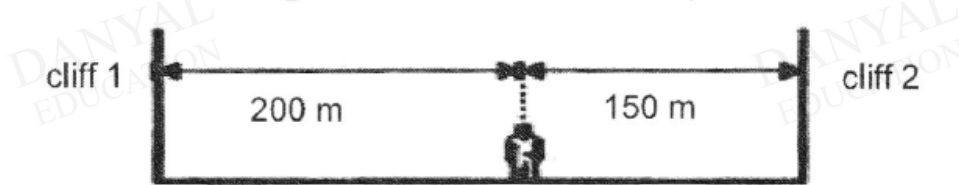cliff 1   cliff 2

200 m   150 m

Fig. 28.1

If the speed of sound in air is 300 m/s, determine the time interval between the two loudest echoes.

A   0.33 s   B   0.83 s   C   1.2 s   D   1.3 s

Q5

Two notes of different pitch but the same loudness are played on a musical instrument. The two sound waves produced will have

A   same frequency and different speed.   B   different frequency and different speed.

C   different frequency and same speed.   D   different speed and same amplitude.
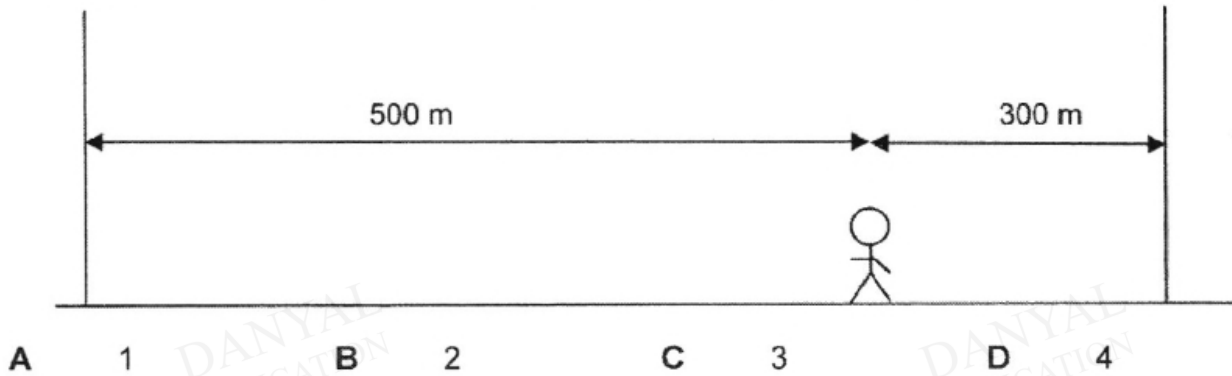
Q6

Which of the following is the approximate range of audible frequency for human?

A   1 Hz to 20 Hz   B   20 Hz to 20 kHz

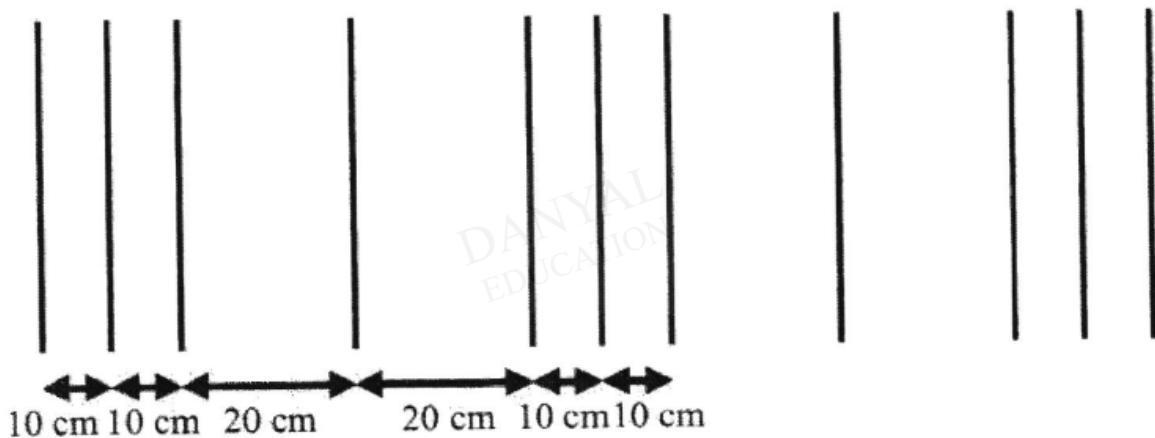C   20 kHz to 200 kHz   D   1000 kHz to 20 000 kHz

2

Q7

A man stands between two walls and fires a pistol. Given that the speed of sound in air is 330 ms^{-1}, how many echoes can the man hear for the first 5 s?

A   1   B   2   C   3   D   4

Q8

A sound wave travelling at 330 m/s produces the waveform shown below. The diagram below is not drawn to scale.

10 cm   10 cm   20 cm   20 cm   10 cm 10 cm

What is the frequency of the sound wave?

A   550 Hz   B   825 Hz   C   1110 Hz   D   1650 Hz
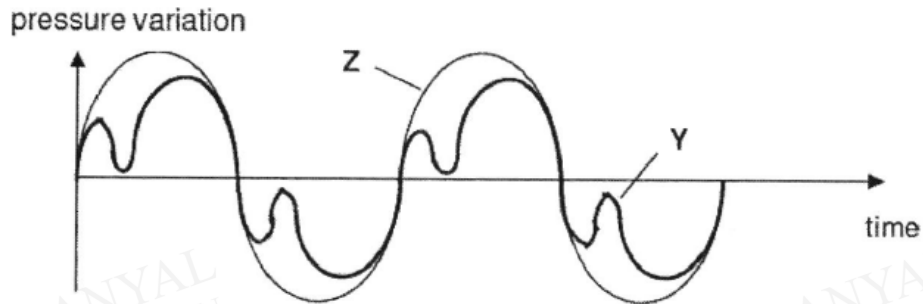
Q9

What happens to a sound wave when the wavelength is doubled?

A   The volume increases
B   The volume decreases
C   The pitch increases
D   The pitch decreases

3

Q10

The diagram shows waveforms produced by a flute (**Y**) and turning fork (**Z**) played by two students.

How does the loudness and pitch of the sound from the turning fork **Z** compare to flute **Y**?

A   The loudness of **Y** is lower but has the same pitch as compared to **Z**.

B   Both **Y** and **Z** have the same pitch and loudness.

C   The loudness of **Y** is higher and the pitch is lower as compared to **Z**.

D   The loudness of **Y** is the same and the pitch is higher as compared to **Z**.

Answers

Sound Test 1.0

Q1 A

Q2 D

Q3 C

Q4 A

Q5 C

Q6 B

Q7 C

Q8 A

Q9 D

Q10 A