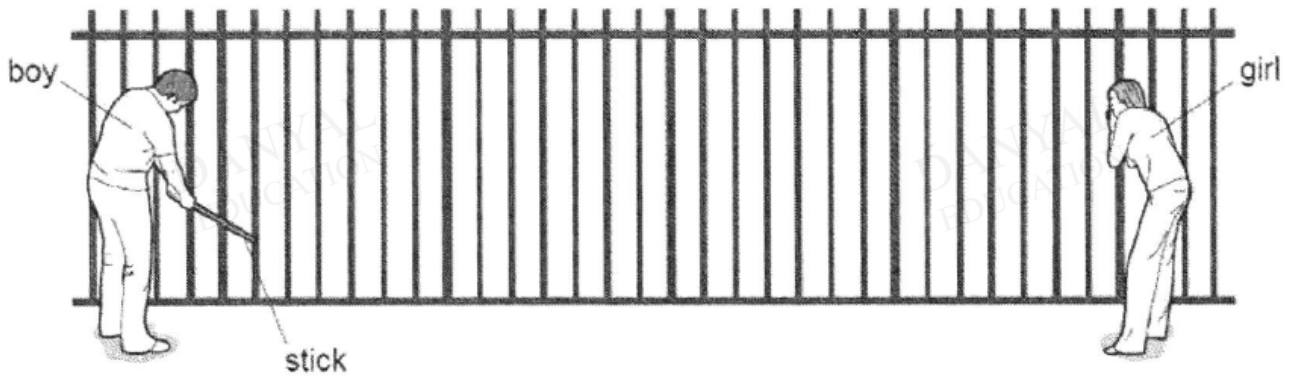


## O Level Pure Physics MCQs

### Sound Test 2.0

Q1

A boy strikes a rigid metal fence with a stick. A girl listens with her ear against the fence. One second after the fence is struck, the girl hears a sound through the air.

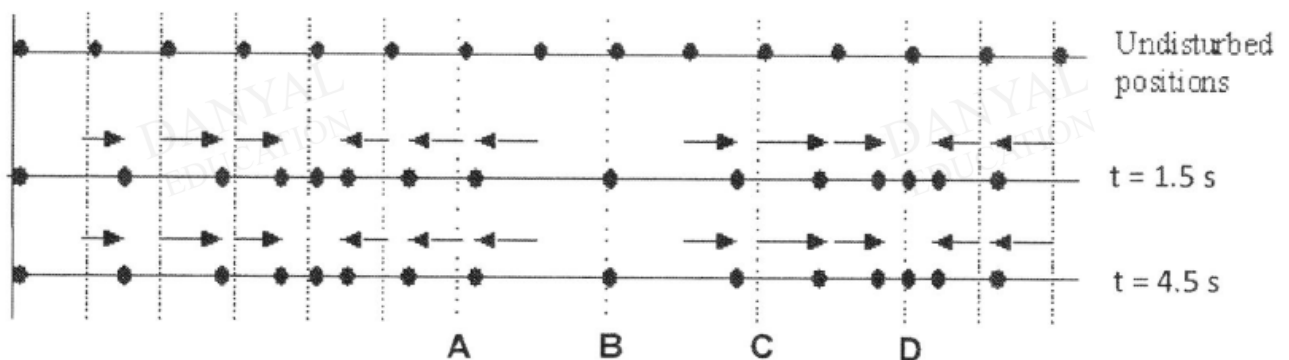


How long will it take for the girl to hear a sound through the fence?

- A less than 1 second
- B 1 second
- C more than 1 second
- D sound cannot travel through the fence

Q2

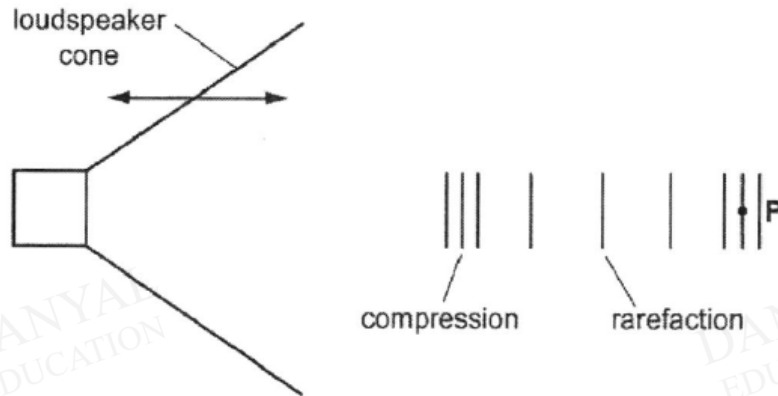
The following diagram shows the air molecules in a sound wave with their undisturbed positions at  $t = 0$  s and when the particles are displaced  $t = 1.5$  s and  $t = 4.5$  s later.



Which of the points above will be the location of a centre of compression at  $t = 1.5$  s?

Q3

Compressions and rarefactions are sent out from a loudspeaker cone as it vibrates horizontally. The frequency of vibration is 50 Hz.

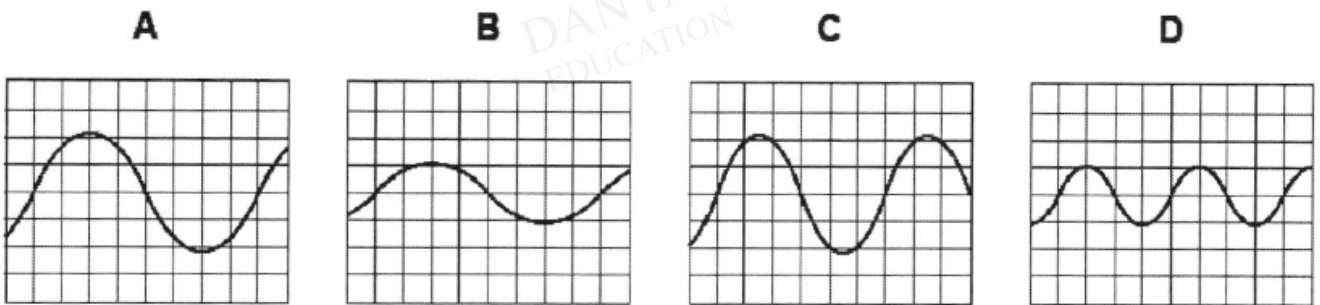


A compression is at point P. How much time elapses before the next rarefaction arrives at P?

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

Q4

The diagrams show oscilloscope traces of sounds picked up by microphones. The oscilloscope controls are set in the same setting for all the traces. Which trace shows the sound that is both soft and low-pitched?



Q5

34. A series of compressions and rarefactions of a sound wave is shown below. The sound wave has a frequency of 1600 Hz and a speed of 320 m/s.

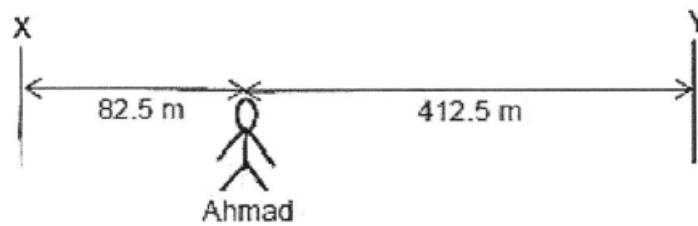


What is the distance between X and Y?

- A 0.20 m  
 B 0.40 m  
 C 0.60 m  
 D 1.20 m

Q6

35. The figure below shows Ahmad standing between two cliffs X and Y. He fires a pistol.



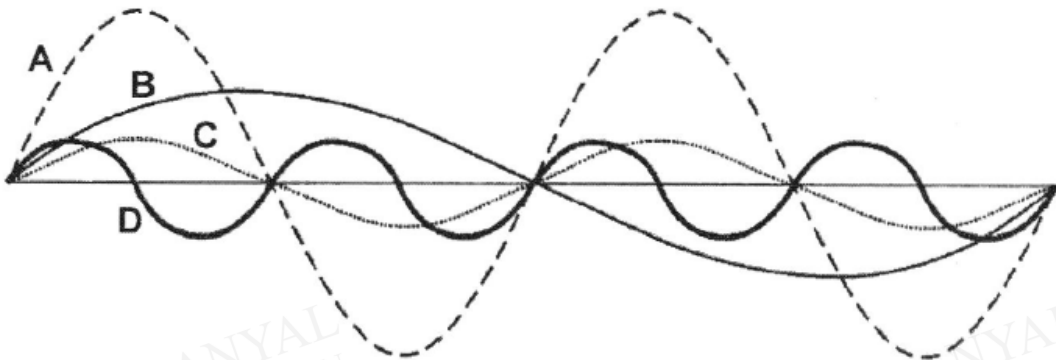
If the speed of sound in air is  $330 \text{ ms}^{-1}$ , what is the time interval between the first two echoes heard by Ahmad?

- A 0.75 s
- B 1.25 s
- C 1.75 s
- D 2.00 s

Q7

The diagram shows the different waveforms of the musical notes played on a flute.

Which waveform, A, B, C or D, has the highest pitch?



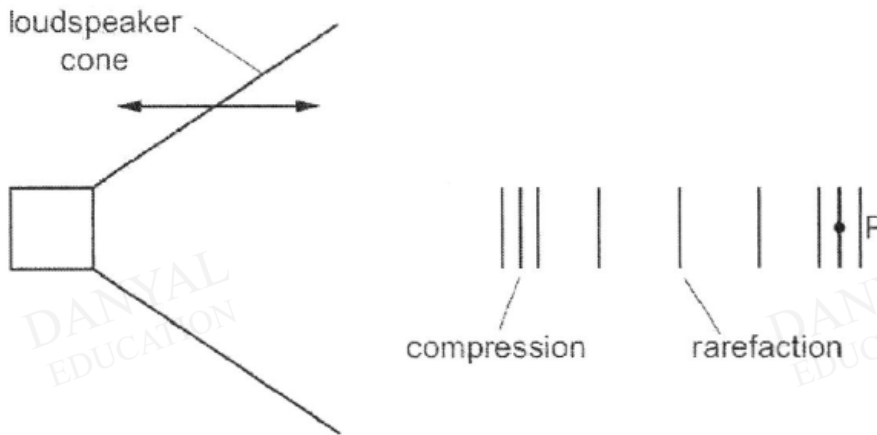
Q8

A student stands 50 m from a wall and knocks two wooden blocks together. When the frequency of knocking is 3 knocks per second, the echo of a knock is heard at the instant of the next one. What is the speed of sound in air?

- A 150 m/s
- B 200 m/s
- C 300 m/s
- D 350 m/s

Q9

Compressions and rarefactions are sent out from a loudspeaker cone as it vibrates backwards and forwards. The frequency of vibration is 50 Hz.



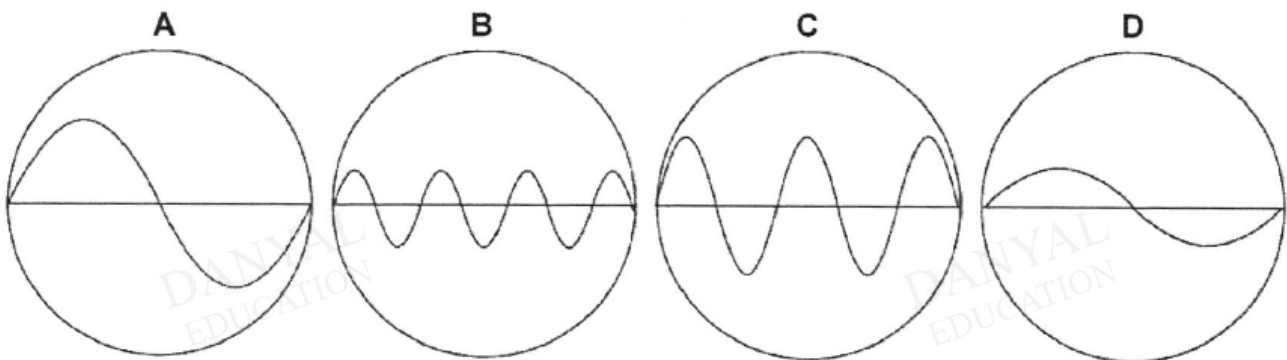
A compression is at point P. How much time elapses before the next rarefaction arrives at P?

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

Q10

The diagrams represent sound waves displayed on an oscilloscope.

Assuming the controls of the oscilloscope remain the same for each sound, which diagram represents the quietest sound with the highest pitch?



**Answers**

**Sound Test 2.0**

Q1 A

Q2 B

Q3 A

Q4 B

Q5 C

Q6 D

Q7 D

Q8 C

Q9 A

Q10 B

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