

# Chapter 12 - Sound

## Short Answer Type Questions

1. The given graph (Fig.12.2) shows the displacement versus time relation for a disturbance travelling with velocity of  $1500 \text{ m s}^{-1}$ . Calculate the wavelength of the disturbance

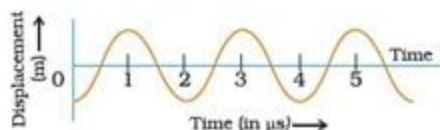


Fig. 12.2

2. Which of the above two graphs (a) and (b) (Fig.12.3) representing the human voice is likely to be the male voice? Give reason for your answer.

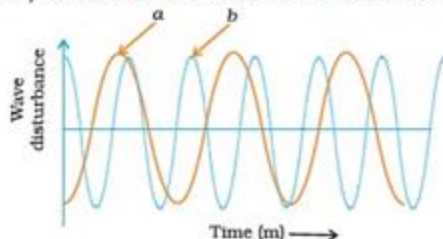
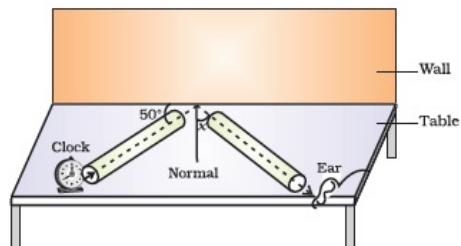


Fig. 12.3

3. A girl is sitting in the middle of a park of dimension  $12 \text{ m} \times 12 \text{ m}$ . On the left side of it there is a building adjoining the park and on right side of the park, there is a road adjoining the park. A sound is produced on the road by a cracker. Is it possible for the girl to hear the echo of this sound? Explain your answer.
4. Why do we hear the sound produced by the humming bees while the sound of vibrations of pendulum is not heard?
5. If any explosion takes place at the bottom of a lake, what type of shock waves in water will take place?
6. Sound produced by a thunderstorm is heard 10 s after the lightning is seen. Calculate the

approximate distance of the thunder cloud. (Given speed of sound =  $340 \text{ m s}^{-1}$ .)

7. For hearing the loudest ticking sound heard by the ear, find the angle  $x$  in the Fig.12.4.



**Fig. 12.4**

8. Why is the ceiling and wall behind the stage of good conference halls or concert halls made curved?

### Long Answer Type Questions

- Represent graphically by two separate diagrams in each case
  - (i) Two sound waves having the same amplitude but different frequencies?
  - (ii) Two sound waves having the same frequency but different amplitudes.
  - (iii) Two sound waves having different amplitudes and also different wavelengths.
- Establish the relationship between speed of sound, its wavelength and frequency. If velocity of sound in air is  $340 \text{ m s}^{-1}$ , calculate
  - (i) wavelength when frequency is  $256 \text{ Hz}$ .
  - (ii) frequency when wavelength is  $0.85 \text{ m}$ .
- Draw a curve showing density or pressure variations with respect to distance for a disturbance produced by sound. Mark the position of compression and rarefaction on this curve. Also define wavelengths and time period using this curve.