

Octahedral classes, kharadi
2nd floor, yashwant plaza, near bank of India,

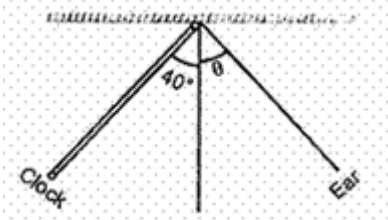
CLASS 09 - SCIENCE

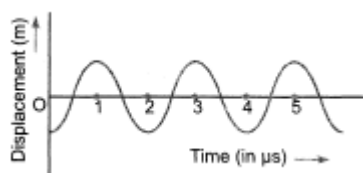
sound

Time Allowed: 1 hour and 30 minutes

Maximum Marks: 40

Section A

1. What is sound and how is it produced? [1]
2. What do you understand by low pitched and high pitched sound? [1]
3. What is the range of frequencies associated with a) Infrasound? b) Ultrasound? [1]
4. Why can't we hear the sound of an explosion on the surface of the Moon? [1]
5. What is the audible range of the average human ear? [1]
6. In the experiment on studying the laws of reflection of sound, the tube facing the clock is placed as shown. The position of the second tube, at which the ear will get the best reflected sound, is obtained when θ equals:
 [1]
7. In which of the three media, air, water or iron, does sound travel the fastest at a particular temperature? [1]
8. If a freely suspended vertical spring is pulled in downward direction and then released, which type of waves are produced in the spring? [1]
9. Why is sound wave called a longitudinal wave? [1]
10. What are mechanical waves? [1]
11. When a sound is reflected from a distant object, an echo is produced. Let the distance between the reflecting surface and the source of sound production remain the same. Do you hear echo sound on a hotter day? [2]
12. Calculate the wavelength of a sound wave whose frequency is 220 Hz and speed is 440 ms^{-1} in a given medium. [2]
13. Flash and thunder are produced simultaneously. But thunder is heard a few seconds after the flash is seen. why? [2]
14. A stone is dropped in a well 44.1 m deep. The sound of splash is heard, 3.13 s after the stone is dropped. Find the velocity of the sound in air. (Take $g = 9.8 \text{ ms}^{-2}$) [2]
15. The given graph shows the displacement versus time travelling with velocity of 1500 ms^{-1} . Calculate the wavelength of the disturbance. [2]



16. An echo returned in 3 s. What is the distance of the reflecting surface from the source, given that the speed of sound is **342ms^{-1}** ? [2]
17. Bats have no eyes still they can ascertain distances, directions nature and size of the objects. Explain why? [2]
18. An echo is returned in 3s. What is the distance of the reflecting surface from the source, given that the speed of sound is 342 ms^{-1} ? [2]
19. If velocity of sound in air is 340 ms^{-1} calculate [2]
 - (i) wavelength when frequency is 256 Hz.
 - (ii) frequency when wavelength is 0.85 m.
20. Why do we see light first and hear the sound later during thunderstorm? [2]
21. Which wave property determines (a) loudness, (b) pitch? [2]
22. The frequency of a source of sound is 100 Hz. How many times does it vibrate in a minute? [2]
23. A Child hears an echo from a cliff 4 seconds after the sound from a powerful cracker is produced. How far away is the cliff from the child? (Take velocity of sound in air as 340 ms^{-1}) [2]
24. Sound is produced due to a vibratory motion, then why a vibrating pendulum does not produce sound? [2]
25. Suppose you and your friend are on the moon. Will you be able to hear any sound produced by your friend? [2]