

SANCHAY® COACHING CENTRE

SCO-99, SECTOR 10A, GURGAON

PHYSICS - 'SOUND' - IX

1. What are transverse and longitudinal waves? Give examples of each.
2. How does sound propagate in air?
3. How does the following affect the speed of sound: density of gas, temperature of gas, nature of medium?
4. What are shock waves?
5. A light wave has a wavelength of $10\text{\AA}$. Find its frequency.
Given speed of light = $3 \times 10^8 \text{ m/s}$.
6. The ratio of frequencies of the two mechanical waves in a medium is 3:4. Find the ratio of their (i) wavelengths (ii) time periods.
7. A sound wave has a wavelength 35 cm and frequency 2 kHz. How long will it take to move through 1.5 km?
8. A stone is dropped from the top of a tower 500m into a pond of water at the base of the tower. When is the splash heard at the top? Given speed of sound = 340 m/s.
9. A stone is dropped into a well 44.1 m deep and sound of splash is heard after 3.13 s. Calculate the velocity of the sound in air.
10. How does Loudness depend on the following: area of vibration of body, amplitude and density of the medium?
11. What is the difference between musical sound and noise?
12. What is (i) Pitch (ii) Quality or Timbre?
13. The ceilings of concert halls are made curved, why?
14. A concave sound board is placed behind the stage, why?
15. What is reverberation? How can we reduce reverberation?
16. Write Industrial and medical applications of ultrasound.
17. What is SONAR? What is it used for?
18. Draw a well labelled diagram of human ear. Explain its working.
19. Ram is standing between two hills. He shouted loudly and hears first Echo after 0.5 sec and second echo after 1 sec. What is the distance between two hills? Given speed of sound = 334 m/s.
20. A ship sends out ultrasound that returns from the seabed and is detected after 3.42 s. If the speed of ultrasound through sea water is 1530 m/s, what is the distance of the seabed from the ship?
21. Explain the terms: Echocardiography, Ultrasonography.
22. A person standing near the cliff fires the gun and heard the echo after 2.2 second. If the speed of sound in air is 340 m/s, how far is the person from the cliff?
23. How is ultrasound used for cleaning?
24. Two children are at opposite ends of an aluminium rod. One strikes the end of the rod with a stone. Find the ratio of times taken by the sound wave in air and in aluminium to reach the second child. Given speed of sound in air = 346 m/s, speed of sound in aluminium = 6420 m/s.
25. What is the condition for a body to produce sound?
26. Why are sound waves called mechanical waves?
27. What is echo? Calculate the minimum distance between the source of sound and reflecting surface to produce an echo? Given speed of sound in air = 340 m/s.
28. The frequency of a source of sound is 100 Hz. How many times does it vibrate in a minute?
29. 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.
30. What is the basic difference between periodic wave and pulse?
31. Name two devices which work on the reflection of sound.
32. Give three important characteristics of wave motion.