PHYSICS

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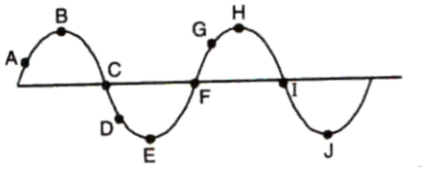
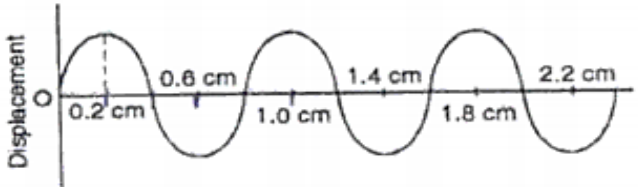
Board – ICSE	Class – 9th	Topic – Sound

1. Mention the essential conditions required for sound waves to travel in a medium.
2. Ratio of the wavelengths of two sound waves in air is 3:5. Find the ratio of their frequencies.
3. Waves are produced in a long string by attaching its free end to a vibrating tuning fork. From the figure given below, name the pair of points which are in the same phase.



4. State three practical uses of ultrasonic vibrations.
5. Compare approximately the speed of sound in air, water and steel.
6. Compare the frequencies of two waves X and Y while velocity and wavelength of X are 5×10^3 m/s and 25 m respectively and for Y, 4×10^3 m/s and 20 m respectively.
7. Why we cannot hear the explosions that take place on other planets on the Earth?
8. In 0.4 m, there are 20 waves and an observer's ear perceives 120 waves in a minute. Calculate the wavelength, the frequency and the speed of the wave.
9. Mention the necessary conditions for a transverse wave to travel in a medium.
10. Define wavelength of a wave in three different ways.
11. A wave of wavelength 0.68 m has a time period of 0.002 sec. find its velocity.
12. A hunter fires a gun on a cliff. Sound of firing is heard 12.5 s after seeing the smoke by an observer 4 km away from the cliff. Calculate the speed of sound in the air.
13. Sound takes 3 s to reach a certain distance from the source placed in air. How much time will it take to reach the same distance when the source is in water? Take speed of sound in air as 330 m/s and in water as 1650 m/s.
14. (i) Distinguish between light wave and sound wave. Give at least three points.
    (ii) Arrange the speed of sound in gases, solids and liquids in ascending order.
15. The distance between the 5th and the 15th crest is 0.4 m. What is the wavelength of sound?
16. The given figure shows the shape of a part of a long string in which transverse waves are produced by attaching one end of the string to a tuning fork of frequency 250 Hz. What is the velocity of the wave?



17. Amplitude of a transverse wave is 1.5 m and wavelength is 5 m. If the velocity of wave is 300 m/s, find the frequency of the wave.