

Study of Sound

Chapter 12: Study of Sound · Topic 1

Key Concept

Sound waves are longitudinal waves, meaning particles vibrate parallel to the direction the wave travels, causing compressions and rarefactions.

The speed of sound varies in different media, travelling fastest in solids, slower in liquids, and slowest in gases like air.

The audible range for humans is typically 20 Hz to 20,000 Hz, with sounds below or above this range called infrasound or ultrasound.

Ultrasound, sound above human hearing range, has practical applications in medical imaging, cleaning, and industrial testing.

Quick Revision Notes

- Sound: longitudinal waves.
- Particles vibrate parallel to wave direction.
- Creates compressions, rarefactions.
- Speed varies: fastest solids, slowest gases.
- Human audible range: 20Hz to 20,000Hz.
- Below range: infrasound.
- Above range: ultrasound.
- Ultrasound used in medical imaging, cleaning.

Practice Questions

- 1 Discuss why sound is a longitudinal wave.
- 2 Research the speed of sound in different media.
- 3 Discuss the human audible range.
- 4 Research an ultrasound application in medicine.
- 5 Discuss what infrasound and ultrasound are.
- 6 Explain sound wave properties in your own words.