Wave Motion

Mechanical waves | Non mechanicalwaves | Longitudinal waves | Transeverse waves

direction of particles vibration↑

direction of wave propagation

Transeverse waves

sound

Sound is a form of energy which is produced by a vibrating body. It travels in the fom of waves

Propagation of sound : Sound transmitted in the form ofmechanical Waves.Thus sound needs amedium to travel

Terminologies

Wave length(λ)
It is the distance between two consecutive compressions or rarefractions.

Amplitude (a)
The maximum displacement of vibrating body is known as amplitude

Frequency (u)
The number of oscillations produced per second.
It is measured in hertz (Hz).
The speed of sound wave is given by speed =frequency × wavelength.

Time period
Time taken to complete one vibration

Wave velocity:
Distance travelled in one vibration

C=region of max. density
R=region of min. density

C R C R C R C

Terminologies related to sound

Loudness or Softness

Pitch

Timber or Quality

Graph B shows the smaller wave than A, so we will sense lower volume of sound in B.

The frequency of graph C is twice as much as graph A. which means C is higher pitch than A.

Range of Hearing : 20Hz-20KHz
less than 20Hz : Infrasonic sound or infra sound
More than 20 Hz : Ultrasonic sound or ultra sound

Ultrasound : Produced by quartz crystal oscillator

High frequency, small wavelength and high energy content

Reflection of sound

Wooden Board

Carboard Tube

Carboard Tube

Stopwatch

Soft Wood

Observer

Echo

Sonar

obstacle

clap

echo

sound waves

Transmitter

Receiver

Bottom of sea