

National Institute of Open Schooling
Senior Secondary
Lesson 14 – Wave Phenomenon
WORKSHEET – 14

- Q.1** Wave travel linearly and particle can vibrate on its mean position. A wave transmits momentum. Can it transfer angular momentum?
- Q.2** How does the velocity of e.m. waves depend upon the permeability and permittivity of the medium through which they pass?
- Q.3** Do displacement, particle velocity and pressure variation in a longitudinal wave vary with the same phase?
- Q.4** Name important properties of a material medium responsible for the propagation of waves through it.
- Q.5** Two girls are at opposite ends of a brass rod. One girl strikes the end of the rod with a hammer. Find the ratio of times taken by the sound wave in air and in brass to reach the second girl?
- Q.6** Since we know that there is absence of atmosphere outside of the Earth. Imagine two astronauts are on the surface of the moon and want to talk each other. Can they talk to each other?
- a) If yes, support your answer with reasons
 - b) If no, support your answer with reasons
- Q.7** An engine blowing a whistle of frequency 250 Hz moves with a velocity 20 ms^{-1} towards a hill from which a well defined echo is heard. Calculate the frequency of the echo as heard by the driver. Velocity of sound in air is 340 ms^{-1} .
- Q.8** Does the sound of a bomb explosion travel faster than the sound produced by a humming bee? Explain with reasons.
- Q.9** Two progressive sound waves each of frequency 170 Hz are travelling in opposite directions in air and superpose to produce stationary waves. The speed of sound in air is 340 ms^{-1} . What is the separation between (i) two successive nodes, (ii) two successive antinodes and (iii) a node and its nearest antinode?
- Q.10** A resonance tube is resonated with tuning fork of frequency 512 Hz. Two successive lengths of the resonated air-column are 16.0 cm and 51.0 cm. The experiment is performed at the room temperature of 40°C . Calculate the speed of sound at 0°C