

XI Physics Worksheet

Time: 30 min

Chapter #15: Waves-01

Full Marks: 20

Instructions:

1. All questions are compulsory.
2. Please give the explanation for the answer where applicable.

Q1 - What types of waves are sound and light?

(1 Mark)

Q2 - If the temperature increases, then what happens to the frequency of the sound produced by the organ pipe?

(1 Mark)

Q3 - In case of standing wave, where constructive interference is formed?

(1 Mark)

Q4 - Is the velocity of vibration of the medium same as the velocity of the wave motion?

(2 Marks)

Q5 - The displacement of a wave is represented by $y = 0.25 \times 10^{-3} \sin(500t - 0.05x)$ where all the quantities are in their proper units. Find the maximum particle velocity of the medium?

(2 Marks)

Q6 - If the ratio of the amplitudes of the two interfering beams be 2:3 then find the ratio of the minimum and maximum intensities of sound?

(2 Marks)

Q7 - Find the molecular weight of a gas in which the velocity of sound is 1260 m/sec at 0°C and whose $\gamma = 1.4$.

(3 Marks)

Q8 - The fundamental frequency of a closed organ pipe is equal to the first overtone frequency of an open organ pipe. If the length of the open pipe is 60 cm, what is the length of the closed pipe?

(3 Marks)

Q9 - Two trains are moving towards each other at speeds of 54 km/hr and 36 km/hr respectively relative to the ground. The first train sounds a whistle of frequency 600 Hz. Find the frequency of the whistle as heard by a passenger in the second train (a) before the trains meet and (b) after the trains have crossed each other. The speed of sound in air is 340 m/sec.

(5 Marks)