

Model Question Paper 1

Wave Motion 1

11th Standard

Physics

Reg.No. :

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Answer all the Questions

Time : 00:45:00 Hrs

Total Marks : 40

5 x 1 = 5

Part A

- 1) In a longitudinal wave there is state of maximum compression at a point at an instant. The frequency of wave is 50 Hz. After what time the same point be in the state of maximum rarefaction.....
(a) 0.01 s (b) 0.002 s (c) 25 s (d) 50 s
- 2) Sound of frequency 256 Hz passes through a medium. The maximum displacement is 0.1 m. The maximum velocity is equal to.....
(a) $60\pi \text{ m s}^{-1}$ (b) $51.2\pi \text{ m s}^{-1}$ (c) 256 m s^{-1} (d) 512 m s^{-1}
- 3) Which of the following does not affect the velocity of sound?
(a) Temperature of the gas (b) Pressure of the gas (c) Mass of the gas (d) Specific heat capacities of the gas
- 4) When a wave passes from one medium to another, there is change of.....
(a) frequency and velocity (b) frequency and wavelength (c) wavelength and velocity (d) frequency, wavelength, and velocity
- 5) Sound waves from a point source are propagating in all directions. What will be the ratio of amplitude at a distance 9 m and 25 m from the source?
(a) 25 : 9 (b) 9 : 25 (c) 3 : 5 (d) 81 : 625

Part B

5 x 2 = 10

- 6) Define wave motion. Mention the properties of the medium in which a wave propagates.
- 7) Obtain an expression for the velocity of transverse wave in a stretched string, when it is vibrating in fundamental mode.
- 8) Derive the Newton-Laplace formula for the velocity of sound in gases.
- 9) Show that the velocity of sound increase by 0.61 ms^{-1} for every degree rise of temperature.
- 10) Sound travels faster on rainy days. Why?

Part C

5 x 3 = 15

- 11) In solids both longitudinal and transverse waves are possible, but transverse waves are not produced in gases. Why?
- 12) What are the characteristics of the wave motion?
- 13) Distinguish between intensity and loudness of sound.
- 14) What are the essential conditions for the formation of beats?
- 15) How are stationary waves formed?

Part D

2 x 5 = 10

- 16) Distinguish between transverse and longitudinal waves.
- 17) List out the differences between a progressive wave and a stationary wave
