

Model Question Paper 2

Wave Motion 2

11th Standard

Physics

Reg.No. :

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Answer all the Questions

Time : 00:50:00 Hrs

Total Marks : 45

5 x 1 = 5

Part A

- 1) The intensity level of two sounds are 100 dB and 50 dB. Their ratio of intensities are.....
(a) 10^1 (b) 10^5 (c) 10^3 (d) 10^{10}
- 2) Number beats produced by two waves of $y_1 = a \sin 2000 \pi t$, $y_2 = a \sin 2008 \pi t$ is.....
(a) 0 (b) 1 (c) 4 (d) 8
- 3) In order to increase the fundamental frequency of a stretched string from 100 Hz to 400 Hz, the tension must be increased by.....
(a) 2 times (b) 4 times (c) 8 times (d) 16 times
- 4) The second overtone of an open pipe has the same frequency as the first overtone of a closed pipe of 2 m long. The length of the open pipe is,
(a) 2 m (b) 4 m (c) 0.5 m (d) 0.75 m
- 5) A source of sound of frequency 150 Hz is moving in a direction towards an observer with a velocity 110 m s^{-1} . If the velocity of sound is 330 m s^{-1} , the frequency of sound heard by the person is
(a) 225 Hz (b) 200 Hz (c) 150 Hz (d) 100 Hz

Part B

5 x 2 = 10

- 6) On what factors does the intensity of sound depend?
- 7) What is an echo ? why an echo cannot be heard in a small room?
- 8) Obtain the equation for plane progressive wave
- 9) Write a short note on whispering gallery.
- 10) State the principle of superposition

Part C

5 x 3 = 15

- 11) What are overtones or harmonics?
- 12) What is meant by end correction?
- 13) What are the properties of stationary waves?
- 14) Derive the equation of stationary wave and deduce the condition for nodes and antinodes.
- 15) Prove that in a pipe closed at one end, frequency of harmonics are in the ratio 1:3:5.

Part D

3 x 5 = 15

- 16) State the laws of transverse vibrations in stretched strings
- 17) What are beats? Show that the number of beats produced per second is equal to the difference in frequencies.
- 18) What are interference of sound waves? Describe an experiment to explain the phenomenon of interference of waves.
