

Physics - FSC Part 1 Physics Chapter 8 Short Questions Preparation

Q1. State the principal of superposition.

Ans 1:

Q2. Which is richer in harmonic, and why:

(A) an open organ pipe (B) A closed organ pipe.

Ans 1: The pipe, which is open at both ends, is richer in harmonics.

At open end molecules of the air are free to move and an antinode is formed while the movement of air molecules is restricted at the closed end and a node is formed.

Therefore, the pipe open at both ends have antinode at each end and is richer in harmonics.

Q3. What feature do longitudinal waves have in common with transverse waves?

Ans 1: The common features are:

1. Both are mechanical waves.
2. Both transport energy from one place to another.
3. Both satisfy the equation

Q4.

Differentiate between travelling waves and stationary waves.

Ans 1: A wave which transfer energy by moving away from the source of disturbance, is called a travelling wave. The ripples produced in the water are the examples of travelling waves.

Two waves of equal frequency travelling in opposite direction produce stationary waves. In stationary waves energy cannot flow past the nodes and remains "standing" in the medium between nodes. Waves produced in a stretched string and air column are the examples of stationary waves.

Q5. Explain the term "Beats" .

Ans 1: Two waves that are travelling in the same direction with a slight difference in frequencies will produce beats. Number of beats per second is equal to the difference in frequencies.

Q6. What do you mean by the term progressive waves?

Ans 1: A wave which transfer energy by moving away from the source of disturbance is called progressive wave. For example, longitudinal and transverse waves.

Q7. What do you observe in the collective effect of dots in the form of a picture?

Ans 1: We observe that the picture is made up of many closely spaced dots.

In case of mechanical waves, it is actually the effects of cooperative oscillations of a very large number of the particles of the medium through which the wave is passing.

Q8. How stationary waves are produced in a medium

Ans 1: These waves are produced by the superposition of two identical waves traveling in opposite direction. When a stretched string clamped at its two ends is plucked then the stationary waves are produced.

Q9. Define Mechanical and Electromagnetic waves. Give examples of each.

Ans 1: Mechanical Waves: The waves which require any medium for their propagation by the oscillation of material particles are called mechanical waves e.g sound waves, water waves etc.

Electromagnetic waves: The waves which do not require any medium for their propagation are called electromagnetic waves. For example, visible light, radio waves, television signals, and x-rays.

Q10. Why "stationary waves" are called standing waves?

Ans 1: In stationary waves energy cannot flow past the nodes and remains "standing" in the medium between nodes. Therefore stationary waves are called standing waves.
