

Physics - FSC Part 1 Physics Chapter 8 Short Questions Preparation

Q1. Define Doppler Effect.

Ans 1: The apparent change in the frequency of sound due to relative motion between the observer and source of sound is called Doppler Effect. If the observer and source of sound are approaching then the frequency of sound will increase and vice versa.

Q2. What is meant by sonar? Explain.

Ans 1: Sonar is an acronym derived from "sound navigation and ranging". Sonar is the name of technique for detecting the presence of objects under water by acoustical echo. It employs the Doppler Effect, in which an apparent change in frequency occurs when the source and the observer are in relative motion. Its applications are detection of submarines, mine hunting and depth measurement of sea.

Q3. How should a source of sound move with.r.t an observer so that the frequency of its sound does not change?

Ans 1: If sound source is moving in circular path with the observer at the center of the circle then relative velocity of the observer with respect to the source of sound is zero, there will be no change in the frequency of sound.

Q4. A wave is produced along a stretched string but some of its particles permanently show zero displacement . What type of wave is it?

Ans 1: A wave is produced along a stretched string but some of its particles permanently show zero displacement. It is a stationary wave and points at zero displacement are called nodes.

Q5. 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.

Q6. 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

Q7. 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.

Q8. What do you mean by the term progressive waves?

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

Q9. 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.

Q10. 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.
