

Physics - ICS Part 1 Physics Chapter 8 Short Questions Test

Q1. What happens when a jet plane like a concorde flies faster than the speed of sound?

Ans 1: A conical surface of concentrated sound energy sweeps over the ground as a supersonic plane passes overhead. It is known as sonic boom.

Q2. State the principal of superposition.

Ans 1:

Q3.

Differentiate between travelling waves and stationary waves.

Ans 1: A waves 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.

Q4. Define transverse waves, Give two examples.

Ans 1: Transverse waves are those in which particles of the medium are displaced in a direction perpendicular to the direction of propagation of waves.

Waves produced in a stretched string and ripple produced in water are good examples of transverse waves.

Q5. 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.

Q6. Is it possible for two identical waves travelling in the same direction along the string to give rise to a stationary wave?

Ans 1: No, it is not possible for two identical waves travelling in the same direction along a string to give rise to stationary waves, For stationary waves, two identical waves must travel in opposite direction.

Q7. Explain why sound travels faster in warm air than in cold air?

Ans 1:

Q8. 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.

Q9. Can Doppler Effect be applied to electromagnetic waves? Give an example.

Ans 1: Yes, Doppler effect can be applied to electromagnetic waves. For example, in radar systems, the Doppler effect is used to determine the elevation and speed of aeroplane.

Q10. Why ultrasonic waves are preferred on radio waves for the use of undersea communication?

Ans 1: Ultrasonic is a high frequency sound wave. It is not a part of electromagnetic spectrum. Ultrasonic waves transmit energy from one place to another using elastic properties of matter. They are preferred on radio waves for the use of undersea communication because they can travel longer distances in water.
