Physics - FSC Part 1 Physics Chapter 8 Short Questions Preparation

Q1. What feature do longitudinal waves have in common with transverse waves?

Ans 1: The common features are:

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

Q2. 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. Fro example, visible light, radio waves, television signals, and x-rays.

Q3. As the result of distant explosion an observer senses a ground tremor and then hears the explosions.Explain the time difference.

Ans 1: The waves produced by the explosion reach the observer quickly through the ground as compared to the sound waves reaching through the air. This is due to the reason that sound travels faster in solid than gases.

Q4. 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.

Q5. 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.

Q6. Explain the term red shift and blue shift in Dopplers Effect.

Ans 1: Stars moving away from the Earth show red shift. The emitted waves have a longer wavelength than if the star had been at rest. So the spectrum is shifted towards longer wavelength.
Stars moving towards the Earth show blue shift. This is because the wavelength of light emitted by the star is shorter than if the star had been at rest. So the spectrum is shifted towards shorter wavelength.

Q7. How are beats useful in tuning musical instruments?

Ans 1: Beats are used in tuning musical instruments. One can use beats to tune a string of musical instrument such as plano by beating a not against a note oh known frequency.The string is then adjusted to the desired frequency by tightening or loosening it until no beats are heard.

Q8. How stationary waves are produced in a medium.

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

Q9. Give any two applications of Doppler Effect.

Ans 1: Doppler effect is used:

1. In radar systems, the Doppler effect is used to determine the elevation and speed of aero plane.
2. Astronomers use the Doppler Effect to calculate the speed of distant stars and galaxies.

Q10. Why can micro waves not detect under water objects?

Ans 1: Microwave are strongly absorbed by sea water within feet of their transmission Ultrasonic is a high frequency sound wave. Its is not part of electromagnetic spectrum. They are preferred on microwaves for the use of undersea communication because they can travel longer distance in water.
