

Physics - FSC Part 1 Physics Chapter 8 Short Questions Preparation

Q1. 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 piano by beating a note against a note of known frequency. The string is then adjusted to the desired frequency by tightening or loosening it until no beats are heard.

Q2. What are the factors on which speed of sound in air depends?

Ans 1:

1. Speed of sound is inversely proportional to the square root of densities of gases.
2. Speed of sound increases with the increase in temperature
3. Speed of sound is not affected by a variation in the pressure of the gas.

Q3. 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 an aeroplane.
2. Astronomers use the Doppler Effect to calculate the speed of distant stars and galaxies.

Q4. How stationary waves are produced in a medium.

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

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. Why can microwaves not detect underwater objects?

Ans 1: Microwaves are strongly absorbed by sea water within feet of their transmission. Ultrasonic is a high frequency sound wave. It is not part of the electromagnetic spectrum. They are preferred over microwaves for the use of underwater communication because they can travel longer distances in water.

Q7. Which is richer in harmonics, 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.

Q8. 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.

Q9.

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.

Q10. 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.
