1. What is the cause of sound production?
   A. Movement of air
   B. Vibration of objects
   C. Flow of current
   D. Movement of light (B)

Explanation : Sound is produced by the vibration of objects such as tuning forks, vocal cords, and stretched strings.

2. What is the nature of sound waves in air?
   A. Transverse waves B. Circular waves
   C. Longitudinal waves
   D. Electromagnetic waves (C)

Explanation : In air, sound propagates as longitudinal waves with compressions and rarefactions.

3. What is the SI unit of frequency?
   A. Second B. Meter
   C. Hertz D. Pascal (C)

Explanation : Frequency is measured in hertz (Hz), named after Heinrich Hertz.

4. Which property of sound determines its pitch?
   A. Amplitude B. Speed
   C. Frequency D. Wavelength (C)

Explanation : Pitch depends on the frequency of vibration. Higher frequency means higher pitch.

5. What is the audible range of the human ear?
   A. 2 Hz – 200 Hz
   B. 20 Hz – 20,000 Hz
   C. 200 Hz – 2,000 Hz
   D. 2,000 Hz – 20,000 Hz (B)

Explanation : The normal hearing range of humans lies between 20 Hz and 20,000 Hz.

6. Which of the following uses multiple reflection of sound?
   A. Thermometer B. Stethoscope
   C. Stopwatch D. Microscope (B)

Explanation : In a stethoscope, sound travels to the doctor's ears by multiple reflection of sound waves.

7. What minimum distance is required to hear an echo clearly?
   A. 10 m B. 17.2 m
   C. 25 m D. 0.1 m (B)

Explanation : The reflected sound must reach after 0.1 seconds. At a speed of 344 m/s, the minimum distance required is 17.2 m.

8. Which instrument uses ultrasound to view internal organs?
   A. Thermometer B. Telescope
   C. Ultrasound scanner D. Periscope (C)

Explanation : Ultrasound scanners use ultrasonic waves to create images of organs like kidney, liver, and uterus.

9. What is the relation between speed (v), frequency (ν), and wavelength (λ)?
   A. $v = \lambda + \nu$ B. $v = \lambda\nu$
   C. $v = \nu/\lambda$ D. $v = \lambda/\nu$ (B)

Explanation : Speed of sound = Wavelength × Frequency, i.e., $v = \lambda\nu$

10. What kind of sound has frequency more than 20,000 Hz?
    A. Audible sound B. Noise
    C. Infrasound D. Ultrasound (D)

Explanation : Ultrasound refers to sound with frequency higher than 20 kHz (20,000 Hz).