DCA CLASSES

CLASS IX – SCIENCE – CHAPTER 12

SOUND

Name: Date:

01. Wavelength of sound wave has units:

(a). meters (b). meters/sound (c). $(meters)^2$ (d). $meters/second^2$

02. Light is a

(a). Longitudinal wave (b). Transverse wave (c). Both (d). None

03. In compression, pressure density is

(a). High (b). Less (c). Remains same (d). a or b depend on disturbance

04. Frequency of ultrasonic sound wave is

(a). Greater than 20 Hz (b). Greater than 20,000 Hz

(c). Greater than 2 Hz (d). Greater than 2 MHz

05. S. I. units of frequency are: -

(a). second (b). $second^{-1}$ (c). $(second)^2$ (d). $decond^{-2}$

06. Stethoscope work on the principle of: -

(a). Multiple reflection of sound (b). Ultrasounds

(c). Both a and b (d). None of the above

07. Audible Range of human ear is:-

(a). 20 HZ – 20 KHZ (b). 20 HZ – 20 MHZ (c). 20HZ – 20,000 HZ (d). Both a) and b)

08. The order of bones is human area from outside to inside :-

(a). Hammer, stirrup Anvil (b). Hammer, Anvil and stirrup

(c). Anvil, Stirrup and Hammer (d). Stirrup, Hammer and Anvil

09. Which of the following is used in echocardiography?

(a). Ultrasound waves (b). Infrasound waves

(c). X-Ray waves (d). Both a) and c)

10. Infrasound is produced by:-

(a). Bats (b). Dogs (c). Rhinoceros (d). Rats

11. Speed of sound is maximum in :-

(a). Solids (b). Liquids (c). Gases (d). Plasma

12. Inner Ear is called as

(a). cochlea (b). Pinna (c). Hammer (d). Anvil

Q01. Differentiate between longitudinal and transverse wave?

Q02. Define the terms:- 1) Wavelength 2) Frequency 3) Time Period 4) Amplitude of a wave

Q03. An underwater device directs ultrasounds of frequency 75 KHz towards water surface. What is the wavelength of sound in the air above the water surface and what is its frequency? Speed of sound in air = 340m/s.

Q04. What is an echo? Name two areas of its application?

Q05. What happens when sound travels in air?

Q06. Why are sound waves called as mechanical waves?

Q07. What are laws of reflection of sound?

Q08. What do you understand by loud and soft sound?

Q09. A sound wave travels at a speed of 340m/s. If the wavelength of wave is 1.4m, what is the frequency of wave?

Q10. What do you understand by low pitched and high pitched sound?

Q11. Why do we see light first and hear the sound later during thunderstorm?

Q12. What is SONAR? Write its working?

Q13. Why are the ceilings of concert halls curved?

Q14. Establish the relation for a wave that velocity = frequency X wavelength.

Q15. When a wave travels from one medium to another, the wavelength changes but not the frequency. The wavelength of sound disturbance 30 cm in air and of the wave velocity is 340 m/s. What will be the wavelength of this disturbance in Helium & water? The speed of sound in helium is 970 m/s and 1450 m/s in water?

Q16. Sound waves of wavelength λ travel from a medium in which its velocity is v m/s into another medium in which if velocity is 3 v m/s. What is the wavelength of the sound λ in the second medium?

Q17. Sound requires a medium to travel? Justify experimentally.

Q18. A cork on the surface of water moves up down completing five vibrations in 4s. The waves travel from a cork to the shore which is 20m away in 10s calculate

(a). the speed (b). frequency (c). wavelength

Q19. An observer far away from a railway station hears the train starting. The sound arrives both from the steel rails and through air with a time difference of 3.5s. How far is the railway station from the observer? The speed of sound in air and steal is 340m/s and 5130m/s respectively?

Q20. How can ultrasound be used to detect the defect in metal block?

Q21. What is reverberation? What is done to reduce it?

Q22. Discuss briefly the structure and working of human ear?

Q23. A man standing in a valley between two parallel mountains fires a gun and hears echo at an interval of 2 s and 3.5s. what is

(a). the distance between two mountains

(b). the location of the man with respect to the mountain.