

Board –CBCE

Class –8th

Topic – Sound

VERY SHORT ANSWER TYPE QUESTIONS

1. What is the length of vocal cords in men?

Ans. The vocal cords in men are about 20 mm long.

1. What is meant by oscillatory motion?

Ans. The to and fro motion of an object is known as oscillatory motion.

1. Define 1 hertz.

Ans. A frequency of 1 hertz means one oscillation per second.

1. Define amplitude.

Ans. The maximum distance to which a vibrating body moves on either side of its mean position is called the amplitude of vibration.

1. How is the frequency of a sound and pitch related?

Ans. If the frequency of vibration is higher, then the sound has a higher pitch.

1. Name the equipment which works at frequencies greater than 20,000 Hz.

Ans. Ultrasound equipment.

1. What is meant by noise pollution?

Ans. The presence of excessive or unwanted sound in the atmosphere is called noise pollution.

1. Name the SI units of (i) time period (ii) frequency.

Ans. (i) Second (ii) Hertz.

1. What happens to sound when it strikes a surface?

Ans. The sound gets reflected on striking a surface.

1. Why do we hear the sound of the horn of an approaching car before the car reaches us?

Ans. This happens because the speed of sound is much greater than the speed of the car.

SHORT ANSWER TYPE QUESTIONS

1. The sound from a mosquito is produced when it vibrates its wings at an average rate of 500 vibrations per second. What is the time period of the vibration?

Ans. Time taken for 500 vibrations = 1 second

$$\text{Time taken for 1 vibration} = \frac{1}{500} \text{ second}$$

$$\text{Time period} = \frac{1}{500} \text{ second.}$$

1. If the amplitude increases three times, by how much will the loudness increase?

Ans. If the amplitude increases three times, the loudness will increase by a factor of 9 times.

13. The frequency of a given sound is 1.5 kHz. How many vibrations is it completing in one second?

$$\text{Frequency} = \frac{\text{No. of vibrations}}{\text{time}}$$

$$\begin{aligned} \text{No. of vibrations} &= \text{Frequency} \times \text{Time} \\ &= 1.5 \times 1000 \times 1 = 1500 \text{ vibrations} \end{aligned}$$

14. We cannot hear the sound of the exploding meteors in the sky, though we can see them. Why?

Ans. Sound cannot travel through vacuum. In space, there is vacuum. Light can travel through vacuum, so we can see the exploding meteor but cannot hear the explosion.

15. We can hear the supersonic jet planes flying. How?

Ans. The supersonic jet planes fly in the air. Since sound can travel through the air, we can hear them flying.

16. How do birds and insects produce sound?

Ans. Birds chirp with the help of syrinx in their windpipe. Insects produce sound by flapping their wings.

17. (a) In our body which part of the ear receives sound waves?

(b) What may happen if the eardrum does not form our ear?

Ans. (a) Pinna helps in receiving sound waves.

(b) If the eardrum is absent, we would not be able to hear.

18. Give an example each of :

(a)Stringed instrument (b) Percussion instrument

(c) Wind instrument (d) Striking instrument

Ans. (a) Violin (b) Drums (c) Flute (d) Jal Tarang

19. Can sound travel through water? How do whales communicate underwater?

Ans. Yes, sound can travel through water. Since sound can travel through water, the whales can communicate with each other.

20. How is it that you can hear a friend talking in another room without seeing him?

Ans. Sound can travel in all directions and around corners. Light cannot travel around corners. Therefore, we can hear a friend talking in another room but cannot see him.

ANSWER THE FOLLOWING IN BRIEF

21. List sources of noise pollution in your surroundings.

Ans. The major sources of noise pollution are the sounds of vehicles, explosions, machines, loudspeakers.

22. How can noise pollution be controlled in a residential area?

Ans. (a) The noisy operations must be conducted away from residential areas.

(b) Noise producing industries should be set away from such areas

(c) Use of automobile horns be minimized.

(d) TV and music systems should be run at lower volumes.

23. A pendulum oscillates 40 times in 4 seconds. Find its time period and frequency.

Ans. 40 vibrations in 4 seconds.

10 vibrations in 1 second

∴ Frequency = 10 vibrations/sec. or 10 Hz

∴ Time period = 1/10 sec.

24. Your parents are going to buy a house. They have been offered one on the roadside and another three lanes away from the roadside. Which house would you suggest your parents should buy? Explain your answer.

Ans. I would advise my parents to buy the house three lanes away from the roadside because the noise from automobiles would be much less.

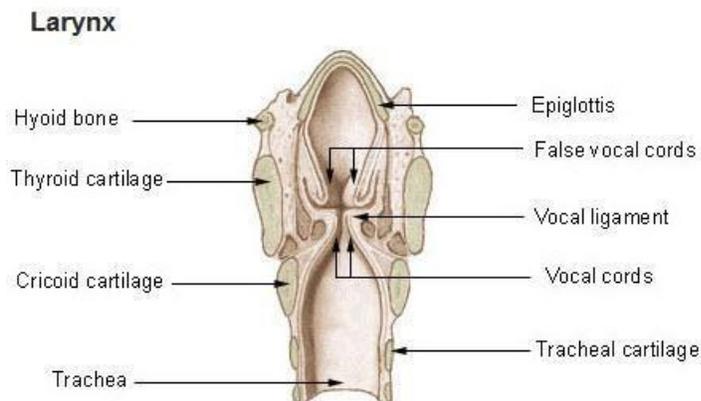
25. Why is the voice of men, women and children different?

Ans. The voices of men, women and children are different because the length of vocal cords is different. The length of vocal cords is longest in men and shortest in children.

ANSWER THE FOLLOWING IN APPROPRIATE DETAIL

26. Sketch the larynx and explain its function in your own words.

Ans. We produce in the larynx of our throats. The larynx has two vocal cords, folds of tissue with a slit-like opening between them. When we speak, air passes through the opening, and the vocal cords vibrate to produce sound.



27. Lightning and thunder take place in the sky simultaneously and at the same distance from us.

Lightning is seen earlier, and thunder is heard later. Can you explain why?

Ans. The speed of light is more than the speed of sound. Therefore, even though thunder and lightning take place simultaneously, we see the lightning earlier.

28. (i) Why is SONAR?
(ii) What is the basic principle of its working?
(iii) Explain its use.

Ans. (i) SONAR refers to sound Navigation and Ranging.
(ii) The principle of reflection of sound is used in SONAR.
(iii) SONAR is used to measure the depth of the ocean. Ultrasonic waves are sent from the ship down into the sea. They are received back after reflection from the sea bed. The depth is calculated by noting the time period.

29. What is the use of ultrasound in medicine and industry?

Ans. Use of ultrasound in medicine :

- (i) For scanning and imaging the body for stones, tumours and foetus.
(ii) For relieving pain in muscles and joints.

Use of ultrasound in the industry:

- (i) For detecting finer faults in metal sheets.
(ii) In dishwashing machines where water and detergent are vibrated with ultrasonic vibrators.
(iii) For homogenizing milk in milk plants

30. What is a sonogram? Why is it preferred to X-ray?

Ans. The sonogram is an image of the internal organs. Ultrasound can pass through the human body and are reflected. The reflections are recorded by computer, and images are generated on the screen.

A sonogram is not harmful and is therefore used for studying the foetus or stone or tumor in the organs. On the other hand, X-rays can be harmful if humans are exposed for a longer time.

31. (i) Name a property of sound which is (a) Similar to the property of light (b) Different from that of light.
(ii) Why do some people have a hearing impairment? How do they communicate with others?

- Ans. (i) (a) The property of sound similar to light is that in both reflection takes place
(b) Sound can travel around corners, but light cannot.
- (ii) Some people suffer from hearing impairment because their eardrum is damaged or absent. This can be from birth or may occur later on. Such people communicate with "sign language". They can also use "hearing aids".