

Exercise Questions

Question 1: Choose the correct answer:

Sound can travel through

- (a) gases only
- (b) solids only
- (c) liquids only
- (d) solids, liquids and gases.

Answer: (d) solids, liquids and gases.

Question 2: Which of the following voices is likely to have minimum frequency?

- (a) Baby girl
- (b) Baby boy
- (c) A man
- (d) A woman

Answer: (c) A man

Question 3: In the following statements, tick T against those which are true, and F against those which are false:

- (a) Sound cannot travel in vacuum. (T / F)
- (b) The number of oscillations per second of a vibrating object is called its time period. (T / F)
- (c) If the amplitude of vibration is large, sound is feeble. (T / F)
- (d) For human ears, the audible range is 20 Hz to 20,000 Hz. (T / F)
- (e) The lower the frequency of vibration, the higher is the pitch. (T / F)
- (f) Unwanted or unpleasant sound is termed as music. (T / F)

(g) Noise pollution may cause partial hearing impairment. (T/F)

Answer:

True

Date _____

Q. 3 Ans. → (a) True

(b) False

(c) False

(d) True

(e) False

(f) False

(g) True

Question 4: Fill in the blanks with suitable words.

- (a) Time taken by an object to complete one oscillation is called _____.
- (b) Loudness is determined by the _____ of vibration.
- (c) The unit of frequency is _____.
- (d) Unwanted sound is called _____.
- (e) The shrillness of a sound is determined by the _____ of vibration.

Answer:

- (a) Time taken by an object to complete one oscillation is called **time period**.
- (b) Loudness is determined by the **amplitude** of vibration.
- (c) The unit of frequency is **Hertz**.
- (d) Unwanted sound is called **Noise**.
- (e) The shrillness of a sound is determined by the **frequency** of vibration.

Question 5: A pendulum oscillates 40 times in 4 seconds. Find its time period and frequency.

Answer: Here no. of oscillation = 40

Time taken = 4s

$$\text{Time period} = \frac{\text{Time taken}}{\text{Number of oscillations}} = \frac{4}{40} = 0.1 \text{ seconds}$$

$$\text{Frequency} = \frac{\text{Number of oscillations}}{\text{Time taken}} = \frac{40}{4} = 10 \text{ Hz}$$

Question 6: 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?

Answer: Time period = $\frac{\text{Time taken}}{\text{Number of oscillations}} = \frac{1}{500} = 0.002 \text{ seconds}$

Question 7: Identify the part which vibrates to produce sound in the following instruments

- (a) Dholak
- (b) Sitar
- (c) Flute

Answer:

(a) Dholak: Dholak has stretched membranes which vibrate to produce sound.

(b) Sitar: In sitar, the stretched strings, when vibrate, they produce sound.

(c) Flute: Flute is a wind musical instrument which uses air column to produce sound.

Question 8: What is the difference between noise and music? Can music become noise sometimes?

Answer: Music is a sound which produces a pleasing sensation while noise is an unwanted and unpleasant sound. Music is produced by nature, musical instruments etc. Noise is produced by horns of vehicles, by machines etc.

Music can become noise when we play it at very high volume or too many music are being played at the same time with unpleasant loudness.

Question 9: List sources of noise pollution in your surroundings.

Answer: Some sources of noise pollution are as follows:

- (i) Televisions and transistors running at high volumes
- (ii) Loudspeakers and crackers
- (iii) Horns of buses, cars and trucks
- (iv) Home appliances such as mixer, desert cooler, etc.

Question 10: Explain in what way noise pollution is harmful to humans.

Answer: Lack of sleep, hypertension (high blood pressure), anxiety and many more health disorders may be caused by noise pollution.

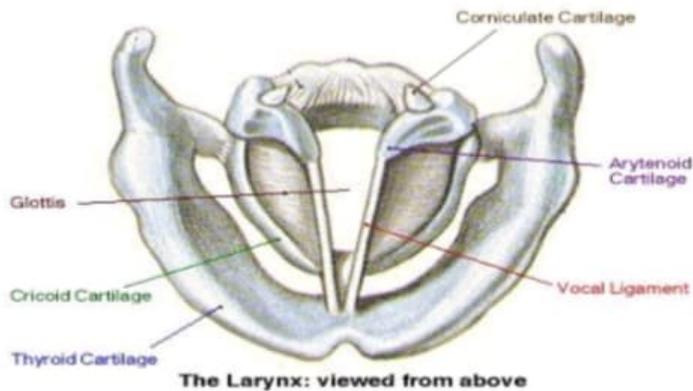
A person who is exposed to a loud sound continuously may get temporary or even permanent impairment of hearing.

Question 11: 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.

Answer: There will be more noise in the house which is along the roadside. This is because noise produced by transportation vehicles may cause trouble to the residents. The intensity of noise decreases with the distance between the source and the listener. Hence, it is better to take the house that is three lanes away from the roadside.

Question 12: Sketch larynx and explain its function in your own words.

Answer: When we swallow something, the larynx moves. There are two vocal cords inside the larynx. The air passes through a small gap which is present in between them. The lungs force the air into the gap when we speak and this vibrates the vocal cord, due to which sound is produced.



Question 13: Lightning and thunder take place in the sky at the same time and at the same distance from us. Lightning is seen earlier and thunder is heard later. Can you explain?

Answer: Speed of sound is 330 m/s and speed of light is 300,000,000 m/s. Light travels much faster than sound that is why lightning is seen earlier and thunder is heard.