

NCERT SOLUTIONS

CLASS VIII SCIENCE

CHAPTER-13 SOUND

Select the correct answer from the following:

Que.1. *The propagation of sound takes place through*

(i) solids only (ii) liquids only (iii) gases only (iv) solids, liquids and gases.

Ans.

(iv) Sound can pass through solids, liquids and gases.

For the sound to travel it requires a medium. The medium can be solids, liquids and gases which provides the medium through which sound can travel.

Que.2. *From the following who has a minimum frequency in voices?*

(i) Baby boy (ii) baby girl (iii) A women (iv) A man

Ans.

(iv) A man

When compared to the voices of a baby boy, a women, a baby girl, the voice of a man has lower pitch. As the pitch of a man is low which is proportional to the frequency of a sound, the man's voice is of minimum frequency as compared with others.

Que.3. *Answer whether the following statements are true or false:*

(i) Travel of sound through the vacuum is not possible.

(ii) A vibrating object whose number of oscillations per second is known as time period.

(iii) Sound is feeble, if its amplitude of vibration is large.

(iv) The audible range for human ears is from 29 Hz to 20,000 Hz.

(v) The higher the pitch, the lower is the vibration of frequency.

(vi) Music is defined as the unpleasant or unwanted sound.

(vii) Partial hearing impairment is caused by noise pollution.

Ans.

(i) True

Medium is necessary for the sound to travel through. Sound cannot pass through vacuum as it is devoid of any medium.

(ii) False

A vibrating object whose number of oscillations per second is known as its frequency. The time taken to complete one oscillation is called as time period.

(iii) False

The square of the amplitude of vibration is proportional to the loudness of sound. Sound is loud when the amplitude of vibration is large. For feeble sound, the amplitude is small.

(iv) True

Sounds of all frequencies are not audible to human ears. The range of frequencies which are audible to human ears is between 20 Hz to 20,000 Hz. Sounds outside this frequencies are not audible to human ears.

(v) False

Higher the frequency, higher is the pitch of the sound as pitch is proportional to its frequency. For high pitched sound, its vibrating frequency is high and for low pitched sound, its vibrating frequency is small.

(vi) False

Music is a melodious and pleasing sound which is pleasant to hear. Noises are unpleasant sounds.

(vii) True

Noises are unwanted and unpleasant sounds, which cause temporary hearing impairment when heard continuously for a long period of time.

Que.4. Answer the following questions with suitable answer.

(i) _____ is called the time taken to complete one oscillation by the object.

(ii) _____ of vibration determines the loudness.

(iii) _____ are unwanted and unpleasant sound.

(iv) _____ is the unit for frequency.

(v) _____ of vibration determines the pitch of sound.

Ans.

(i) Time period (ii) Amplitude (iii) Noise (iv) Hertz(Hz) (v) Frequency.

Que.5. Find the frequency and time period for a pendulum which oscillates 50 times in 5 seconds.

Ans.

The number of oscillations per second of the vibrating body is known as frequency of oscillation.

$$\text{Frequency} = \frac{\text{Total number of oscillations}}{\text{Total time taken}}$$

$$= \frac{50}{5}$$

$$= 10 \text{ Hz}$$

Time period is the time taken to complete one oscillation. It is also the inverse of frequency.

$$\text{Time period} = \frac{1}{\text{oscillating frequency}}$$

$$= \frac{1}{10}$$

$$= 0.1 \text{ s}$$

$$\therefore \text{frequency} = 10 \text{ Hz}$$

$$\text{Time period} = 0.1 \text{ s}$$

Que.6. When the mosquito vibrates its wings at a rate of 600 vibrations per second. Find the time period for that vibration.

Ans.

Time period is defined as the time taken to complete one oscillation. It is also the inverse of frequency.

$$\text{Time period} = \frac{1}{\text{oscillation frequency}}$$

$$\text{Oscillation frequency} = 600 \text{ Hz}$$

$$\text{Time period} = \frac{1}{600} = 0.0016 \text{ s}$$

Que.7. In the given instruments find the part which vibrates to produce sound.

(i) Sitar (ii) Flute (iii) Dholak

Ans.

(i) Sitar – It is a musical instrument. Stretched strings are part of it. Vibrations are produced when the string is plucked when played. These vibrations produce sound, thus sitar produce sound.

(ii) Flute – Its an instrument which has holes in it. It is a hollow pipe. The air inside the pipe is set into vibration when air is blown over its mouth and this produces a pleasant sound.

(iii) Dholak- It consist of a head which is a stretched membrane. Vibrations are set into these stretched strings when the head is beaten gently and these vibrations produce sound and thus Dholak produce sound.

Que.8. Noise and music, are they different? Could music transform into noise sometimes?

Ans.

Music are sounds which are pleasant to hear. Sounds from flutes, pianos and violins are pleasant to hear.

Noise are sounds which are unpleasant to hear.

Sounds which are unpleasant to hear are:

(a) Sounds from bus horns and truck horns.

(b) Electrical generator sounds.

(c) Gun shot sounds.

(d) Jackhammer sounds

Yes, sometimes when the music are played at high volumes, it becomes noise.

Que.9. What are the sources that cause noise pollution in your environment.

Ans.

Noise pollution sources are:

(a) Bus and car horns.

(b) Firecrackers and loudspeakers.

(c) High volumes in televisions and transistors.

(d) mixers at home

Que.10. What are the harmful effect in human due to noise pollution?

Ans.

A number of health issues are associated with noise pollution. They are:

(a) Stress

(b) Headache

(c) Hearing loss

(d) Insomnia

Que.11. When your parents are about to buy a house, they have been offered with two offers. One of the offers is a house which is on the roadside and the other is a house which is three lanes away from the roadside. Which one will you suggest your parents to buy and explain why?

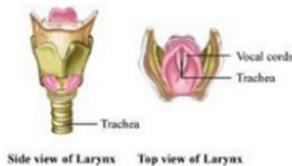
Ans.

It is better to buy the house which is three lanes away from the roadside as there will be less noise as compared to the one on the main road. The noises can be caused by vehicles. As the distance between the source and the listener increases, the intensity of noise decreases. So it will be advisable to buy the house which is three lanes away.

Que.12. Draw and explain the function of larynx.

Ans.

Larynx is present in the throat and it is the one which produces sound.



When we swallow something, 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.

Que.13. When thunder and lightning occurs, it occurs at the same time but lightning is seen first and then thunder is heard. Explain why?

Ans.

Speed of the light is more than the speed of sound. Thus, lightning is seen first which is accompanied by thunder later.