

CBSE Class 8 Science
NCERT Exemplar Solutions
CHAPTER – 13
Sound

MULTIPLE CHOICE QUESTIONS

1. A list of mediums is given below:

- (i) wood
- (ii) water
- (iii) air
- (iv) vacuum

In which of these mediums can sound travel?

- (a) i & ii only
- (b) i, ii & iii only
- (c) iii & iv only
- (d) ii, iii & iv only

Ans: (b) i, ii & iii only

Explanation: Sound requires a medium for its propagation. It can travel through air, water and wood. It cannot travel through vacuum.

2. The loudness of sound depends on:

- (a) its amplitude.
- (b) its frequency.
- (c) its time period.

(d) its speed.

Ans: (a) its amplitude

Explanation: The loudness of sound is determined by the **amplitude** of the vibrations. Sound with vibrations of higher amplitude is comparatively louder. If the amplitude of the vibrations is small, the sound produced is weak (i.e. less loud).

3. Which of the following statements are correct?

- (i) Sound is produced by vibrations.
 - (ii) Sound requires a medium for propagation.
 - (iii) Light and sound both require a medium for propagation.
 - (iv) Sound travels slower than light.
- (a) i & ii only
- (b) i, ii & iii only
- (c) ii, iii & iv only
- (d) i, ii & iv only

Ans: (d) i, ii & iv only

Explanation: Correct statements regarding sound and light are:-

Sound is produced by vibrations. Sound requires a medium for propagation. Sound travels slower than light.

Light does not require a medium for propagation.

4. An object is vibrating at 50 hertz. What is its time period?

- (a) 0.02 s
- (b) 2 s

(c) 0.2 s

(d) 20.0 s

Ans: (a) 0.02 s

Explanation: Time period = 1 / frequency, i.e. $T = 1 / f$ or $T = 1 / 50$ or $T = 0.02$ s

5. In order to reduce the loudness of a sound, we have to:

(a) decrease its frequency of vibration of the sound.

(b) increase its frequency of vibration of the sound.

(c) decrease its amplitude of vibration of the sound.

(d) increase its amplitude of vibration of the sound.

Ans: (c) decrease its amplitude of vibration of the sound.

Explanation: The loudness of a sound is determined by the amplitude of the vibrations produced by the sound. In order to reduce the loudness of a sound, we have to decrease the amplitude of the vibrations.

6. Loudness of sound is measured in units of:

(a) decibel (dB)

(b) hertz (Hz)

(c) metre (m)

(d) metre/second (m/s)

Ans: (a) decibel (dB)

Explanation: Loudness of sound is measured in decibels (Symbol for decibels is "dB")

7. The loudness of sound is determined by the:

- (a) amplitude of vibration.
- (b) ratio of amplitude and frequency of vibration.
- (c) frequency of vibration.
- (d) product of amplitude and frequency of vibration.

Ans: (a) amplitude of vibration

Explanation: The loudness of sound is determined by the **amplitude** of the vibrations. Sound with vibrations of higher amplitude is comparatively louder. If the amplitude of the vibrations is small, the sound produced is weak (i.e. less loud).

8. 1 hertz is equal to:

- (a) 1 vibration per minute
- (b) 10 vibrations per minute
- (c) 60 vibrations per minute
- (d) 600 vibrations per minute

Ans: (c) 60 vibrations per minute

Explanation: Frequency = 1 Hz **or** 1 vibration per second **or** 60 vibrations per 60 seconds **or** 60 vibrations per 1 minute.

9. Pitch of sound is determined by its:

- (a) frequency
- (b) amplitude
- (c) speed
- (d) loudness

Ans: (a) frequency

Explanation: Pitch of a sound determined by the frequency of sound. Sound with a higher frequency is shrill and is said to possess a higher pitch. Sound with a lower frequency is said to possess a lower pitch.

10. Ultrasound has frequency of vibration:

(a) between 20 and 20,000 Hz

(b) below 20 Hz

(c) above 20,000 Hz

(d) between 500 and 10,000 Hz

Ans. (c) above 20,000 Hz

Explanation: Ultrasound waves have a frequency of vibration above 20,000 Hz (20 kHz) and hence they are not audible to the human beings.