Chapter 13: Sound

Multiple Choice Questions **Page-142**

1. (a) 2. (c)

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1. (b) 2. (d)

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1. (c) 2. (c)

EXERCISE

A. Tick (✓) the correct options.

1. (c) 2. (a) 3. (a) 4. (a) 5. (c) 6. (a)
7. (c) 8. (b)

B. Look at the figure given alongside and tick (✓) the correct options.

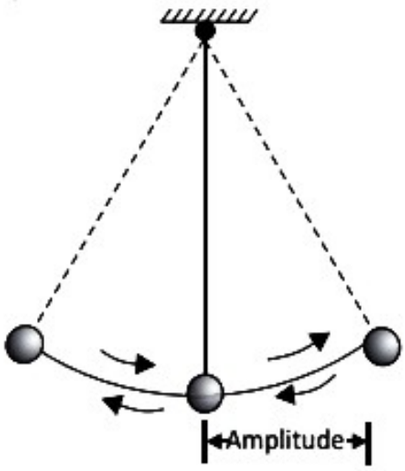
1. (c) 2. (c)

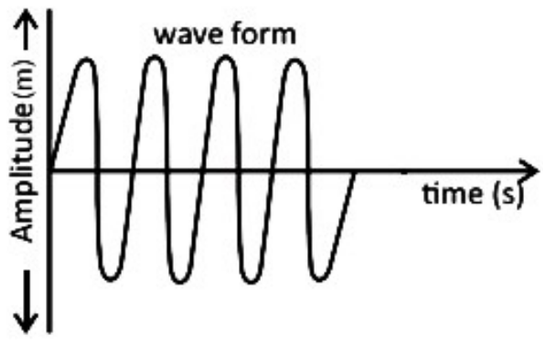
C. Fill in the blanks.

1. vibrations
2. Higher, higher
3. different
4. tone
5. pinna

D. Very Short Answer Questions.

1. Flute and *shehnai*
2. **Amplitude:** It is the maximum displacement of the bob from its mean position.





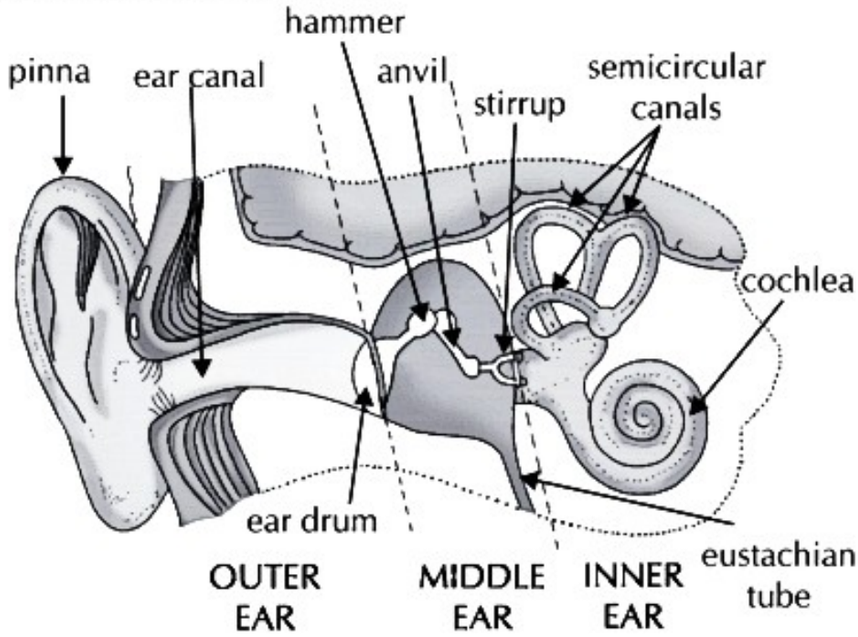
3. **Frequency:** The number of complete oscillations made by a simple pendulum in one second is called frequency of the pendulum. Its SI unit is hertz (Hz).
4. Hammer, anvil and stirrup
5. 20 Hz – 20,000 Hz
6. Sound is produced by voice box or larynx.

E. Short Answer Type-I Questions.

1. Wind instruments are generally made in the form of pipes. When we blow air into them, the column of air inside vibrates, producing a note (a sound of particular frequency).
2. Loudness of sound is directly proportional to the square of the amplitude of the vibration producing the sound.
3. Cochlea receives the amplified vibrations from the three bones of middle ear and converts them into nerve impulses and sends to the brain through auditory nerves.
4. (a) Dolphins, bats
   (b) Whales, elephants
5. (a) By stretching the sheet spread on *tabla* surface
   (b) By varying the lengths of strings of violin
   (c) By varying the size of holes and gaps between the holes
6. (a) The owners of dogs use Galton's whistle to give signals to their dogs.
   (b) More than 20,000 Hz

F. Short Answer Type-II Questions.

1. Human ear : Internal structure



2. The sounds whose frequency lies between 20 Hz and 20,000 Hz, which we are able to hear are called audible sounds.

   Both ultrasonic and infrasonic sounds are inaudible sounds. The frequency range of ultrasonic sounds is more than 20,000 Hz while that of infrasonic sounds is less than 20 Hz.

3. The pendulum makes 20 oscillations in 4 seconds.

   $\therefore$ The pendulum makes oscillations in one second = 5 oscillations.

   $\therefore$ The frequency of pendulum = 5 Hz

   This frequency is not audible.

4. (a) Noise pollution causes nervous tension, irritation, earache, headache and high blood pressure. It may cause temporary or permanent loss of hearing.

   (b) It is not a correct way of celebration because bursting crackers causes air pollution and along with playing loud music causes noise pollution which is not good for our health. It disturbs the other people living in the society especially old and the sick.

G. Long Answer Questions.

1. (a) The characteristics of sound are (i) pitch (ii) loudness and (iii) quality.

   (i) **Pitch :** Pitch is the characteristic of sound by which we can distinguish a shrill sound from a grave (hoarse) sound even though the two sounds have the same loudness.

   (ii) **Loudness :** Loudness is the characteristic of sound by which a loud sound can be distinguished from a faint sound even though both have the same pitch.

(iii) **Quality :** Quality of the sound is the characteristic that enables us to distinguish between two sounds of the same pitch and loudness produced by two different sources.

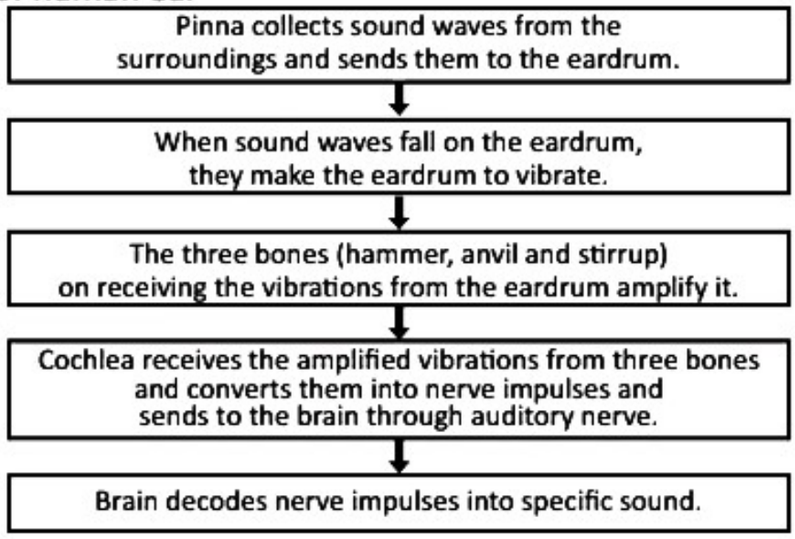
(b) Pitch of a sound depends upon the frequency of vibration.

(i) The pitch of the sound produced by an object vibrating with a low frequency is low and the sound is called a grave sound.

(ii) The pitch of the sound produced by an object vibrating with a high frequency is high and the sound is called shrill sound.

Thus, the higher the frequency of the sound, the higher will be its pitch and vice versa.

2. Working of human ear –



3. (a) Noise from any source that causes disturbance or discomfort of any kind in the environment is called noise pollution.

(b) The three sources of noise pollution are—

(i) loudspeakers (ii) blowing horns (iii) bursting crackers

(c) The five measures to reduce noise pollution are –

(i) Automobiles should be fitted with silencers and soft horns.

(ii) We should not play radio, television and stereo system too loudly.

(iii) The use of loudspeaker at social and religious functions should be banned.

(iv) Machines should be maintained in a good condition to reduce industrial noise pollution.

(v) Avoid bursting fireworks that make loud noise.