WORKSHEET 2

CHAPTER 6 – SOUND

A. Tick (✓) the correct option.

1. The SI unit of wavelength is
   a. metre. b. s^{-1}. c. m/s. d. hertz.
2. Sound wave of which of the following frequency is an ultrasonic sound?
   a. 15 Hz b. 150 Hz c. 15000 Hz d. 25000 Hz
3. In which of the following speed of sound is maximum?
   a. Air b. Water c. Steel d. Kerosene
4. The point of maximum negative displacement of a transverse wave is called
   a. crest. b. trough. c. amplitude. d. none of these.
5. Time period of a sound wave of frequency 100 Hz is
   a. 1 s. b. 0.1 s. c. 0.01 s. d. 0.001 s.

B. Fill in the blanks.

1. A _____ pitch sound is called a hoarse sound.
2. The SI unit of wave velocity is _____
3. The time required to produce one complete wave is called the _____ of the wave.
4. _____ is the characteristic of a sound that enables us to distinguish between two sounds of the same pitch and soundness produced by two different sources.
5. A transverse wave is represented by _____ graph.

C. State whether the given statements are true or false.

1. The substance or matter through which sound is transmitted is called medium.
2. Sound travels fastest in gases.
3. There is no pressure or density variation in longitudinal wave.
4. The distance between two consecutive crest or between two consecutive troughs is called the wavelength.
5. The loudness of sound is directly proportional to the density of the medium.

D. Match the following.

1. Wavelength	second (s)
2. Wave velocity	hertz (Hz)
3. Frequency	decibels (dB)
4. Time period	metre (m)
5. Loudness of sound	metre per second (m/s)

Name: ..... Teacher's signature: .....

Class: IX Date: .....

E. Answer the following questions.

Very Short Answer Questions

1. What is reflection of sound?
2. For how long the sensation of sound persists in our ears?

Short Answer Questions

1. State the laws of reflection of sound.
2. What is an echo?

Long Answer Questions

1. Calculate the minimum distance to hear an echo?
2. An echo is heard in 2 s. What is the distance of the reflecting surface? Given the speed of sound is 342 m/s.

ANSWERS

WORKSHEET 2

A. Tick (✓) the correct option.

1. a 2. d 3. c 4. b 5. c

B. Fill in the blanks.

1. low
2. metre per second
3. time period
4. Timbre
5. displacement distance

C. State whether the given statements are true or false.

1. T 2. F 3. F 4. T 5. T

D. Match the following.

1. Wavelength	metre (m)
2. Wave velocity	metre per second (m/s)
3. Frequency	hertz (Hz)
4. Time period	second (s)
5. Loudness of sound	decibels (dB)

E. Answer the following questions.

Very Short Answer Questions

1. The bouncing back of sound waves when it strikes a hard surface is called the reflection of sound.
2. 0.1 second or one-tenth of a second.

Short Answer Questions

1. According to the laws of reflection of sound,
   - The angle of incidence is equal to the angle of reflection of sound, i.e. $\angle i = \angle r$.
   - The incident sound, the normal, and the reflected sound all lie in the same plane.
2. An echo is the repetition of the original sound heard after the sound is reflected from a distance, dense and rigid object.

Long Answer Questions

1. We know

$$\text{Speed} = \frac{\text{Distance travelled}}{\text{Time taken}}$$

Speed of sound = 344 m/s (at 22 °C in air)

Time taken = $\frac{1}{10}$ s (persistence of hearing)

Distance travelled = Speed × Time

$= 344 \times \frac{1}{10}$

$= 34.4$ m

Thus, the distance travelled by sound is from the source to the reflecting surface and then back to the source. So, our distance from source to reflecting surface is $\frac{34.4}{2} = 17.2$ m.

2. Time taken = 2 s

Speed(v) of sound = 342 m/s

We know

$$\text{Distance} = \frac{\text{Speed} \times \text{Time}}{2}$$

$$= \frac{342 \times 2}{2}$$

$= 342$ m