

**Class: X**  
**Subject: physics**  
**Topic: Sounds and Oscillation**  
**No. of Questions: 20**  
**Duration: 60 Min**  
**Maximum Marks: 60**

## Question 1

**Question:** When a wave travels through a medium \_\_\_\_\_.

1. particles are transferred from one place to another
2. energy is transferred in a periodic manner
3. energy is transferred at a constant speed
4. none of the above statements is applicable

**Answer:** 3

Exp: Energy is the function of frequency

## Question 2

**Question:** The minimum distance between the source and the reflector, so that an echo is heard is approximately equal to \_\_\_\_\_.

1. 10 m
2. 17 m
3. 34 m
4. 50 m

**Answer:** 2

Exp: Assuming a sharp sound (like a gunshot) the minimum distance ( $d=vt$ ) to hear distinct echo is 17.2m considering the speed of sound to be 344ms

### Question 3

**Question:** Bats detect the obstacles in their path by receiving the reflected \_\_\_\_\_.

1. infrasonic waves
2. radio waves
3. electro-magnetic waves
4. ultrasonic waves

**Answer:** 4

Exp: Ultrasonic frequency range is above 20 k Hz

### Question 4

**Question:** When sound travels through air, the air particles \_\_\_\_\_.

1. vibrate along the direction of wave propagation
2. vibrate but not in any fixed direction
3. vibrate perpendicular to the direction of wave propagation
4. do not vibrate

**Answer:** 1

## Question 5

**Question:** The relation between wave velocity 'v', frequency 'f', and wavelength 'l' is \_\_\_\_\_.

1.  $v = \frac{f}{\lambda}$

2.  $v = f\lambda$

3.  $v = \frac{\lambda}{f}$

4.  $v = \frac{1}{f\lambda}$

**Answer:** 2

## Question 6

**Question:** The frequency of a wave travelling at a speed of  $500 \text{ ms}^{-1}$  is 25 Hz. Its time period will be \_\_\_\_\_.

1. 20 s

2. 0.05 s

3. 25 s

4. 0.04 s

**Answer:** 4

Exp:  $v = f\lambda$

## Question 7

**Question:** The amplitude of a wave is \_\_\_\_\_.

1. the distance the wave moves in one second
2. the distance the wave moves in one time period of the wave
3. the maximum distance moved by the medium particles on either side of the mean position
4. the distance equal to one wave length

**Answer:** 3

Exp: Amplitude is maximum displacement.

## Question 8

**Question:** Which of the following is not a characteristic of a musical sound?

1. Pitch
2. Wavelength
3. Quality
4. Loudness

**Answer:** 2

## Question 9

**Question:** Sound waves do not travel through

1. solids
2. liquids

3. gases

4. vacuum

**Answer:** 4

Exp: Sound waves requires medium to propagate.

## Question 10

**Question:** The physical quantity, which oscillates in most waves, is

1. mass

2. energy

3. Displacement

4. wavelength

**Answer:** 3

Exp: Particles oscillate about their mean position.

## Question 11

**Question:** Sound waves are

1. longitudinal

2. transverse

3. partly longitudinal and partly transverse

4. sometimes longitudinal and sometimes transverse

**Answer:** 1

Exp: Sound waves are longitudinal

## Question 12

**Question:** The frequency which is not audible to the human ear is

1. 50 Hz
2. 500 Hz
3. 5000 Hz
4. 50000 Hz

**Answer:** 4

Exp: Audible frequency range

## Question 13

**Question:** The speed of sound in medium depends upon

1. amplitude
2. frequency
3. wavelength
4. properties of the medium

**Answer:** 4

Exp: Properties of the medium

## Question 14

**Question:** Which of the following will remain unchanged when a sound wave travels in air or in water?

1. Amplitude
2. Wavelength
3. Frequency
4. Speed

**Answer:** 3

Exp: Frequency remains unaffected

## Question 15

**Question:** A sound source sends waves of 400 Hz. It produces waves of wavelength 2.5 m. The velocity of sound waves is

1. 100 m/s
2. 1000 m/s
3. 10000 m/s
4. 3000 km/s

**Answer:** 2

Exp:  $v = f \lambda$

## Question 16

**Question:** The time period of a vibrating body is 0.05 s. The frequency of waves it emits is

1. 5 Hz
2. 20 Hz
3. 200 Hz
4. 2 Hz

**Answer:** 2

Exp:  $f = 1/T$

## Question 17

**Question:** A source of frequency of 500 Hz emits waves of wavelength 0.4 m, how long does the waves take to travel 600 m?

1. 3 s
2. 6 s
3. 9 s
4. 12 s

**Answer:** 1

Exp:  $v = f\lambda$



## Question 18

**Question:** Sound and light waves both

1. have similar wavelength
2. obey the laws of reflection
3. travel as longitudinal waves
4. travel through vacuum

**Answer:** 2

Exp: Law of reflection is valid for both light and sound propagation.

## Question 19

**Question:** The method of detecting the presence, position and direction of motion of distant objects by reflecting a beam of sound waves is known as \_\_\_\_\_.

1. RADAR
2. SONAR
3. MIR
4. CRO

**Answer:** 2

Exp: Sound navigation and ranging

## Question 20

**Question:** The technique used by bats to find their way or to locate food is \_\_\_\_\_.

1. SONAR
2. RADAR
3. Echolocation
4. Flapping

**Answer:** 3

Exp: Echo is an reflection

Echolocation