

Chapter 11: Sound Quiz

Production of Sound

1. Sound is produced by?

- ☐ Vibrating objects
- ☐ Moving objects
- ☐ Stationary objects
- ☐ Heated objects

Answer: Vibrating objects

2. Vibration is a?

- ☐ Rapid to and fro motion
- ☐ Slow circular motion
- ☐ Linear motion
- ☐ Random motion

Answer: Rapid to and fro motion

3. Human voice is produced by vibrations in?

- ☐ Vocal cords
- ☐ Tongue
- ☐ Lips
- ☐ Lungs

Answer: Vocal cords

4. Can sound be produced without vibration?

- ☐ No
- ☐ Yes
- ☐ Sometimes
- ☐ Only in space

Answer: No

5. Which energy is required to produce sound?

- ☐ Mechanical energy
- ☐ Heat energy
- ☐ Light energy
- ☐ Chemical energy

Answer: Mechanical energy

Propagation of Sound

1. Substance through which sound travels is called?

- ☐ Medium
- ☐ Vacuum
- ☐ Ether
- ☐ Space

Answer: Medium

2. Can sound travel through vacuum?

- ☐ No
- ☐ Yes
- ☐ Only high frequency
- ☐ Only low frequency

Answer: No

3. In sound propagation, what travels?

- ☐ Disturbance/Energy
- ☐ Particles of medium
- ☐ Source of sound
- ☐ Air

Answer: Disturbance/Energy

4. Do particles of medium travel to the ear?

- ☐ No, they oscillate
- ☐ Yes
- ☐ Sometimes
- ☐ Only in solids

Answer: No, they oscillate

5. Sound is a?

- ☐ Mechanical wave
- ☐ Electromagnetic wave
- ☐ Transverse wave
- ☐ Light wave

Answer: Mechanical wave

Sound Waves are Longitudinal

1. A region of high pressure is called?

- ☐ Compression
- ☐ Rarefaction
- ☐ Crest
- ☐ Trough

Answer: Compression

2. A region of low pressure is called?

- ☐ Rarefaction
- ☐ Compression
- ☐ Valley
- ☐ Peak

Answer: Rarefaction

3. In longitudinal waves, particles move?

- ☐ Parallel to wave direction
- ☐ Perpendicular to wave direction
- ☐ In circles
- ☐ Randomly

Answer: Parallel to wave direction

4. Sound waves in air are?

- ☐ Longitudinal
- ☐ Transverse
- ☐ Electromagnetic
- ☐ None

Answer: Longitudinal

5. Light is a?

- ☐ Transverse wave
- ☐ Longitudinal wave
- ☐ Mechanical wave
- ☐ Sound wave

Answer: Transverse wave

Characteristics of a Sound Wave

1. A peak in the sound wave curve represents?

- ☐ Maximum compression
- ☐ Maximum rarefaction
- ☐ Minimum density
- ☐ Zero pressure

Answer: Maximum compression

2. A valley in the sound wave curve represents?

- ☐ Maximum rarefaction
- ☐ Maximum compression
- ☐ High pressure
- ☐ Crest

Answer: Maximum rarefaction

3. Which characteristic distinguishes sound waves?

- ☐ Frequency, Amplitude, Speed
- ☐ Mass, Volume, Density
- ☐ Color, Shape, Size
- ☐ Heat, Light, Electricity

Answer: Frequency, Amplitude, Speed

4. Compressions are regions of?

- ☐ High density and pressure
- ☐ Low density and pressure
- ☐ Zero density
- ☐ Low pressure

Answer: High density and pressure

5. Rarefactions are regions where particles are?

- ☐ Spread apart
- ☐ Crowded
- ☐ Stationary
- ☐ Fast

Answer: Spread apart

Wavelength and Frequency

1. Distance between two consecutive compressions is?

- ☐ Wavelength
- ☐ Frequency
- ☐ Amplitude
- ☐ Speed

Answer: Wavelength

2. SI unit of wavelength is?

- ☐ Metre
- ☐ Hertz
- ☐ Second
- ☐ Pascal

Answer: Metre

3. Number of oscillations per unit time is?

- ☐ Frequency
- ☐ Time period
- ☐ Wavelength
- ☐ Speed

Answer: Frequency

4. SI unit of frequency is?

- ☐ Hertz
- ☐ Metre
- ☐ Second
- ☐ Decibel

Answer: Hertz

5. Relation between frequency (ν) and time period (T) is?

- ☐ $\nu = 1/T$
- ☐ $\nu = T$
- ☐ $\nu = T^2$
- ☐ $\nu = 1/T^2$

Answer: $\nu = 1/T$

Pitch and Loudness

1. Pitch determines?

- ☐ Shrillness of sound
- ☐ Loudness
- ☐ Quality
- ☐ Speed

Answer: Shrillness of sound

2. Pitch depends on?

- ☐ Frequency
- ☐ Amplitude
- ☐ Speed
- ☐ Medium

Answer: Frequency

3. Loudness depends on?

- ☐ Amplitude
- ☐ Frequency
- ☐ Wavelength
- ☐ Time period

Answer: Amplitude

4. Higher amplitude means?

- ☐ Louder sound
- ☐ Higher pitch
- ☐ Lower pitch
- ☐ Softer sound

Answer: Louder sound

5. Single frequency sound is called?

- ☐ Tone
- ☐ Note
- ☐ Noise
- ☐ Music

Answer: Tone

Speed of Sound

1. Formula for speed of sound is?

- ☐ $v = \text{wavelength} \times \text{frequency}$
- ☐ $v = \text{wavelength} / \text{frequency}$
- ☐ $v = \text{frequency} / \text{wavelength}$
- ☐ $v = \text{wavelength} + \text{frequency}$

Answer: $v = \text{wavelength} \times \text{frequency}$

2. Speed of sound depends on?

- ☐ Properties of medium
- ☐ Source of sound
- ☐ Frequency only
- ☐ Amplitude only

Answer: Properties of medium

3. Speed of sound is maximum in?

- ☐ Solids
- ☐ Liquids
- ☐ Gases
- ☐ Vacuum

Answer: Solids

4. Speed of sound in air at 22°C is approx?

- ☐ 344 m/s
- ☐ 330 m/s
- ☐ 1500 m/s
- ☐ 5000 m/s

Answer: 344 m/s

5. As temperature increases, speed of sound?

- ☐ Increases
- ☐ Decreases
- ☐ Remains same
- ☐ Becomes zero

Answer: Increases

Reflection of Sound

1. Does sound reflect like light?

- ☐ Yes
- ☐ No
- ☐ Only in water
- ☐ Only in vacuum

Answer: Yes

2. Angle of incidence equals?

- ☐ Angle of reflection
- ☐ Angle of refraction
- ☐ 90 degrees
- ☐ 0 degrees

Answer: Angle of reflection

3. Reflection of sound requires?

- ☐ Large obstacle
- ☐ Small obstacle
- ☐ Transparent medium
- ☐ Vacuum

Answer: Large obstacle

4. Law of reflection holds for?

- ☐ Sound and light
- ☐ Only light
- ☐ Only sound
- ☐ Neither

Answer: Sound and light

5. Incident sound, reflected sound and normal lie in?

- ☐ Same plane
- ☐ Different planes
- ☐ Perpendicular planes
- ☐ Parallel planes

Answer: Same plane

Echo

1. Repetition of sound due to reflection is?

- ☐ Echo
- ☐ Reverberation
- ☐ Noise
- ☐ Note

Answer: Echo

2. Minimum time interval to hear echo is?

- ☐ 0.1 s
- ☐ 1 s
- ☐ 0.01 s
- ☐ 0.5 s

Answer: 0.1 s

3. Minimum distance for echo at 22°C is?

- ☐ 17.2 m
- ☐ 34.4 m
- ☐ 10 m
- ☐ 100 m

Answer: 17.2 m

4. Why 0.1 s?

- ☐ Persistence of hearing
- ☐ Speed of light
- ☐ Brain processing
- ☐ Ear drum limit

Answer: Persistence of hearing

5. Rolling of thunder is due to?

- ☐ Multiple reflections
- ☐ Single reflection
- ☐ Refraction
- ☐ Interference

Answer: Multiple reflections

Reverberation

1. Persistence of sound in a hall is called?

- ☐ Reverberation
- ☐ Echo
- ☐ Resonance
- ☐ Vibration

Answer: Reverberation

2. Reverberation is caused by?

- ☐ Repeated reflection
- ☐ Refraction
- ☐ Absorption
- ☐ Diffraction

Answer: Repeated reflection

3. To reduce reverberation, we use?

- ☐ Sound-absorbent materials
- ☐ Mirrors
- ☐ Metal sheets
- ☐ Glass

Answer: Sound-absorbent materials

4. Excessive reverberation is?

- ☐ Undesirable
- ☐ Desirable
- ☐ Good for music
- ☐ Necessary

Answer: Undesirable

5. Example of sound absorbent is?

- ☐ Compressed fibreboard
- ☐ Steel
- ☐ Marble
- ☐ Plastic

Answer: Compressed fibreboard

Uses of Multiple Reflection

1. Which instrument uses multiple reflection?

- ☐ Megaphone
- ☐ Guitar
- ☐ Drum
- ☐ Flute

Answer: Megaphone

2. Stethoscopes work on the principle of?

- ☐ Multiple reflection
- ☐ Refraction
- ☐ Interference
- ☐ Doppler effect

Answer: Multiple reflection

3. Why are concert hall ceilings curved?

- ☐ To reflect sound to all corners
- ☐ For decoration
- ☐ To absorb sound
- ☐ To reduce echo

Answer: To reflect sound to all corners

4. Sound board in halls helps to?

- ☐ Spread sound evenly
- ☐ Absorb sound
- ☐ Stop sound
- ☐ Increase pitch

Answer: Spread sound evenly

5. Horns and trumpets send sound in?

- ☐ Particular direction
- ☐ All directions
- ☐ Backward direction
- ☐ Upward direction

Answer: Particular direction

Range of Hearing

1. Audible range for humans is?

- ☐ 20 Hz to 20000 Hz
- ☐ 0 to 20 Hz
- ☐ Above 20000 Hz
- ☐ 10 to 100 Hz

Answer: 20 Hz to 20000 Hz

2. Children under five can hear up to?

- ☐ 25 kHz
- ☐ 10 kHz
- ☐ 50 kHz
- ☐ 100 kHz

Answer: 25 kHz

3. As people grow older, ears become less sensitive to?

- ☐ Higher frequencies
- ☐ Lower frequencies
- ☐ Middle frequencies
- ☐ All frequencies

Answer: Higher frequencies

4. 1 kHz equals?

- ☐ 1000 Hz
- ☐ 100 Hz
- ☐ 10 Hz
- ☐ 10000 Hz

Answer: 1000 Hz

5. Dogs can hear?

- ☐ Ultrasound
- ☐ Only infrasound
- ☐ Only low pitch
- ☐ Nothing

Answer: Ultrasound

Infrasound and Ultrasound

1. Sound below 20 Hz is?

- ☐ Infrasound
- ☐ Ultrasound
- ☐ Audible sound
- ☐ Noise

Answer: Infrasound

2. Sound above 20 kHz is?

- ☐ Ultrasound
- ☐ Infrasound
- ☐ Sonic
- ☐ Subsonic

Answer: Ultrasound

3. Which animal produces infrasound?

- ☐ Rhinoceros
- ☐ Bat
- ☐ Dolphin
- ☐ Rat

Answer: Rhinoceros

4. Which animal produces ultrasound?

- ☐ Bat
- ☐ Elephant
- ☐ Whale
- ☐ Rhino

Answer: Bat

5. Earthquakes produce?

- ☐ Low-frequency infrasound
- ☐ High-frequency ultrasound
- ☐ Audible sound only
- ☐ No sound

Answer: Low-frequency infrasound

Applications of Ultrasound

1. Ultrasound is used for cleaning because?

- ☐ High frequency detaches dirt
- ☐ It is hot
- ☐ It is loud
- ☐ It is chemical

Answer: High frequency detaches dirt

2. To detect cracks in metal blocks, we use?

- ☐ Ultrasound
- ☐ Infrasound
- ☐ X-rays
- ☐ Light

Answer: Ultrasound

3. If there is a flaw in metal, ultrasound?

- ☐ Reflects back
- ☐ Passes through
- ☐ Absorbs
- ☐ Speeds up

Answer: Reflects back

4. Ordinary sound is not used for flaw detection because?

- ☐ It bends around corners
- ☐ It is too fast
- ☐ It is too slow
- ☐ It is weak

Answer: It bends around corners

5. Ultrasound travels along?

- ☐ Well-defined paths
- ☐ Random paths
- ☐ Curved paths
- ☐ Zigzag paths

Answer: Well-defined paths

Medical Applications

1. Technique to image the heart is?

- ☐ Echocardiography
- ☐ ECG
- ☐ EEG
- ☐ X-ray

Answer: Echocardiography

2. Ultrasonography is used for?

- ☐ Getting images of internal organs
- ☐ Cleaning teeth
- ☐ Hearing aid
- ☐ Measuring height

Answer: Getting images of internal organs

3. Ultrasound can break kidney stones into?

- ☐ Fine grains
- ☐ Large pieces
- ☐ Gas
- ☐ Liquid

Answer: Fine grains

4. Ultrasonography uses?

- ☐ Ultrasonic waves
- ☐ Infrasonic waves
- ☐ Radio waves
- ☐ Light waves

Answer: Ultrasonic waves

5. Examination of foetus is done by?

- ☐ Ultrasonography
- ☐ X-ray
- ☐ CT Scan
- ☐ MRI

Answer: Ultrasonography