

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 (v) and time period (T) is?

- $v = 1/T$
- $v = T$
- $v = T^2$
- $v = 1/T^2$

Answer: $v = 1/T$

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 = wavelength x frequency
- v = wavelength / frequency
- v = frequency / wavelength
- v = wavelength + frequency

Answer: v = wavelength x 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