SOUND

INCLUDED IN THIS SECTION

- ✓ Multiple-Choice Questions (MCQs)
- ✓ Solutions

1. **Our ears are sensitive to a range of frequency:**
   a) 20 Hz to 20 kHz
   b) Below 20 Hz
   c) Above 20 kHz
   d) There is no limit

2. **The frequency above 20 kHz is called:**
   a) Infrasonic
   b) Ultrasonic
   c) Radio
   d) None of these

3. **The sound frequency below 20 Hz is called**
   a) Infrasonic
   b) Ultrasonic
   c) Radio
   d) None of these

4. **Can sound propagate without a medium?**
   a) Don't require any medium
   b) Sometimes required, sometimes not required
   c) Always require a medium
   d) None of these

5. **Speed of sound wave can be expressed in the form of**
   a) $v = \sqrt{d/E}$
   b) $v = \sqrt{d/2E}$
   c) $v = \sqrt{E/d}$
   d) $v = \sqrt{E/2D}$

6. **Pitch of sound is determined by its.**
   a) frequency
   b) speed
   c) amplitude
   d) loudness

7. **The maximum displacement of the particle of a medium on either side of its mean position is called:**
   a) Amplitude
   b) Frequency
   c) Time period
   d) Wavelength

8. **The time taken by a particle of medium to complete its one vibration, is called:**
   a) Amplitude
   b) Frequency
   c) Time period
   d) Wave length

9. **The number of vibration, made by the particle of the medium in one second is called:**
   a) Amplitude
   b) Frequency
   c) Time period
   d) Wave length

10. **The relation between time period(T) and frequency(f) is**
    a) $T = \sqrt{1}/f$
    b) $T = 2f$
    c) $T = \sqrt{1}/f$
    d) $T = \sqrt{f}/2$

11. **The relation between velocity(v), frequency (f), wavelength λ, is given by:**
    a) $v = \lambda f$
    b) $v = \lambda/f$
    c) $v = f/\lambda$
    d) $v = f\lambda^2$

12. **Is the frequency of sound wave dependent on medium?**
    a) Yes
    b) No
    c) Maybe
    d) Not Sure

13. **On moving from Solid To Liquid To Gas medium the speed of sound**
    a) Decreases
    b) Increases
    c) Remains same
    d) None of these

14. **When the vibration of medium particles are along the direction of propagation of sound wave is called:**
    a) Longitudinal wave
    b) Transverse wave
    c) Both a & b
    d) None of these

15. **Which type of waves consists of compressions and rarefactions?**
    a) Longitudinal wave
    b) Transverse wave
    c) Both Longitudinal wave and Transverse wave

d) None of these

16. **The waves in which the particles of the medium vibrate in a direction perpendicular to the direction of wave motion is known as**
   a) Longitudinal wave
   b) Transverse wave
   c) Both a & b
   d) None of these

17. **Which type of waves consist of crests and troughs?**
   a) Longitudinal wave
   b) Transverse wave
   c) Both a & b
   d) None of these

18. **The speed (v) of a longitudinal wave in a gas gaseous medium of density(d), at a pressure(P) is given as**
   a) $v = \sqrt{P/d}$
   b) $v = \sqrt{2YP/d}$
   c) $v = \sqrt{YP/2d}$
   d) $v = \sqrt{YP/d}$

19. **The speed of sound increases in gas when temperature**
   a) Increases
   b) Decrease
   c) Does not depend on the temperature
   d) None of these

20. **The speed of sound decreases in gas when humidity**
   a) Increases
   b) Decrease
   c) Does not depend on the temperature
   d) None of these

21. **Which of the following option is distinguishes between a sharp and dull sound?**
   a) Amplitude
   b) Echo
   c) Pitch
   d) Reverberation

22. **The minimum time for reflected sound to reach after the original sound is heard to hear an echo is**
   a) 0.2 s
   b) 0.1 s
   c) 0.4 s
   d) 0.3 s

23. **The waves used in radars are**
   a) infrasonic waves
   b) ultrasonic waves
   c) radio waves
   d) light waves

24. **Which of the following statements is true?**

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a) Both light and sound waves in air are transverse
b) The sound waves in air are longitudinal while the light waves are transverse
c) Both light and sound waves in air are longitudinal
d) Both light and sound waves can travel in vacuum

25. **Which one of the following material will reflect sound better?**
a) A cloth curtain
c) Paper
b) Steel
d) Thermocol

26. **For sound waves in air, the vibration are:**
a) longitudinal
c) electromagnetic
b) transverse
d) none of the above

27. **Which is not the condition for the formation of echoes?**
a) Minimum distance between the source of sound and reflecting body should be 17m
b) The temperature of air should be above 20°C.
c) The wavelength of sound should be less than the height of the reflecting body.
d) The intensity of sound should be sufficient so that it could be heard after reflection.

28. **The practical application based on the reflection of sound is:**
a) megaphone
c) sonometer
b) sounding board
d) both (a) and (b)

29. **For hearing an echo, the minimum distance between the source of sound and reflectirng body should be**
a) 12 m
c) 17 m
b) 24 m
d) 51 m

30. **To locate its prey in the darkness the owl or the bat emits:**
a) infrasonic waves
c) sonic waves
b) ultrasonic waves
d) infrared waves

31. **A person fires a gun in front of a building 167m away. If the speed of sound is 334ms calculate time in which he hears an echo.**
a) 1
c) 3
b) 2
d) 4

32. **An echo is heard after 0.8s when a person fires a cracker 132.8m from a high building   Calculate the speed of sound.**

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a) 332 m/s
c) 336 m/s
b) 334 m/s
d) 338 m/s

33. **An echo is heard by a radar in 0.08s. If velocity of radio waves is 3×10^8 ms^{-1}, how far is the enemy plane?**
a) 12000 km
c) 13000 km
b) 12200 km
d) 12220 km

34. **A man stands in between two parallel cliffs and explodes a cracker. He hears the first echo after 0.6 s and second echo after 2.4s. Calculate the distance between the cliffs. [Speed of sound is 336 ms^{-1}]**
a) 332 m
c) 334 m
b) 333 m
d) 335 m

35. **The average amount of energy passing through a unit area per unit time in a specified direction is called ____ of the wave.**
a) Intensity
c) Loudness
b) Pitch
d) Quality

36. **Longitudinal waves can travel in ____.**
a) solids only
c) gases only
b) liquids only
d) all of these

37. **Which wave does not require a material medium for their propagation?.**
a) Mechanical waves
c) Both a & b
b) Electromagnetic waves
d) None of these

38. **The velocity of sound in air is not affected by change in ____.**
a) temperature of air
c) composition of air
b) atmospheric pressure
d) moisture content of air

39. **The kind of motion in which transfer of energy takes place when the particles move about their mean position is called ____ motion.**
a) oscillatory
c) vibrational
b) rotational
d) wave

40. **The voice of chatting ladies is shrill because of ____.**
a) Higher pitch
c) Low loudness
b) Lower Pitch
d) High loudness

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41. The distance between two consecutive crests or troughs is defined as _____.
    a) amplitude
    b) wavelength
    c) wave number
    d) half the wave length

42. Waves on water surface are.
    a) transverse waves
    b) longitudinal waves
    c) both a & b
    d) none of these

43. Loudness of sound varies directly with vibrating body's _____
    a) Amplitude
    b) Pitch
    c) Frequency
    d) None of these

44. In which medium the speed of sound will be maximum?
    a) Water
    b) Copper
    c) Aluminium
    d) Steel

45. Wave transfers from one place to another only
    a) particles
    b) mass
    c) energy
    d) medium

46. Which of the following frequencies of sound waves are audible to human beings?
    a) 5 cycles/second
    b) 27000 cycles/second
    c) 5000 cycles/second
    d) 50,000 cycles/second

47. The speed of sound at 0 °C is 330 m/s. Then, the speed of sound at a temperature of 20 °C is _____ m/s.
    a) 2
    b) 42
    c) 32
    d) 342

48. Which of the following devices, work on the principle of multiple reflection of sound?
    a) Bioscope
    b) Periscope
    c) Gramophone
    d) Stethoscope

49. Before the main shock, what sound waves are produced by the earthquake?
    a) Natural Sound Waves
    b) Infra Sonics Sound Waves
    c) Ultrasonics Sound Waves
    d) None of these

50. The frequency of a wave travelling at a speed of 500m/s is 25 Hz. Its time period will be
    a) 20 s
    b) 0.05 s
    c) 25 s
    d) 0.04 s

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51. A child hears an echo from a cliff 4 seconds after the sound is produced from a cracker. The distance of the cliff from the child is _____ m.
    a) 6.88
    b) 688
    c) 68.8
    d) 6888

52. A sound wave propagating through a medium has bounced back into the same medium by hitting a hard surface. This phenomenon is called _____ of sound.
    a) Refraction
    b) Reflection
    c) polarization
    d) dispersion

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