

MULTIPLE CHOICE QUESTIONS (MCQs):

- (1) Wave transport:
* Energy * Matter * Mass * None of these
- (2) The waves which do not require any medium for their propagation are called:
* Matter waves * Sound waves
* Electromagnetic waves * Water waves
- (3) The waves which require a medium for their propagation are called:
* Mechanical waves * Matter waves
* Carrier waves * Electromagnetic waves
- (4) In transverse waves:
* The particles of the medium are vibrating along the direction of wave motion
* The particles of the medium are vibrating at right angle to the direction of wave motion
* The particles of the medium do not vibrate at all
* The particles of the medium are vibrating in the opposite direction of wave motion
- (5) In longitudinal waves:
* The particles of the medium are vibrating along the direction of wave motion
* The particles of the medium are vibrating at right angle to the direction of wave motion
* The particles of the medium do not vibrate at all
* The particles of the medium are vibrating in the opposite direction of wave motion
- (6) Water wave are:
* Longitudinal wave * Complex wave
* Transverse wave * Both longitudinal wave and transverse wave
- (7) When stationary Waves are set up in a stretched string it has fundamental frequency 1000 Hz.
What would in the new fundamental frequency if the tension in the string is increased four times.
* 980Hz * 500Hz * 1010Hz * 2000Hz
- (8) When two identical traveling wave are superposed the velocity of resultant wave.
* Increases * Decreases * Becomes zero * Remains constant
- (9) Wave transmit from one place to another:
* Mass * Weight * Momentum * Energy
- (10) A uniform string of length L, mass m is fixed at both ends under tension T. Then it can vibrate with lowest frequency given be:
* $v = \frac{1}{2L} \sqrt{\frac{T}{\mu}}$ * $v = \frac{1}{2} \sqrt{\frac{T}{\mu}}$ * $v = L \sqrt{\frac{T}{\mu}}$ * $v = 2L \sqrt{\frac{T}{\mu}}$
- (11) The speed of a transverse wave along a string of length L and stretched with tension T is given by:
* $\sqrt{\frac{T}{m}}$ * $\sqrt{\frac{\mu}{T}}$ * $\sqrt{\frac{T}{\mu}}$ * $\sqrt{T\mu}$
- (12) The distance between two consecutive nodes of a stationary wave:
* λ * $\lambda/2$ * $\lambda/4$ * $\lambda/6$

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- (13) The distance between a node and its successive antinode is:
* 2λ * $\lambda/2$ * $\lambda/4$ * λ
- (14) In a sonometer if the Linear density of the wire increased four times, the frequency of vibration:
* Remains the same * Increases four times
* Increases two times * Decreases half
- (15) If a string of length 'L' vibrates in one loop, its wave length is given of:
* $\lambda = \frac{L}{2}$ * $\lambda = L$ * $\lambda = \frac{L}{4}$ * $\lambda = 2L$
- (16) When two exactly similar waves travel in a medium in opposite direction they produce:
* Standing wave * Beats * Resonances * Diffraction
- (17) Which of the following represents longitudinal wave:
* Light wave * Sound wave * Radio wave * X-rays
- (18) If the period of wave motion is 4 sec. and speed 8 m/s. then its frequency is:
* 0.25 Hz * 0.5 Hz * 1 Hz * 2 Hz
- (19) The waves which require a medium for their movement are called:
* Mechanical waves * Matter waves
* Carrier waves * Electromagnetic waves
- (20) A wave generator produces 20 waves in 4 sec. its frequency:
* 2Hz * 4Hz * 5Hz * 6Hz
- (21) The wave speed of transverse wave in terms of its wave length λ and period T is:
* $V = \lambda T$ * $V = \lambda T^2$ * $V = \lambda^2 T$ * $V = \frac{\lambda}{T}$
- (22) A transverse wave has a wave length 1m and period of 2 sec. its speed:
* 0.5m/Sec * 0.5cm/Sec * 1.0m/Sec * 2.0m/Sec
- (23) If a transverse wave has speed of 20m/Sec and a frequency of 20Hz, its wave length:
* 1cm * 1m * 10m * 10cm
- (24) With increase in stretching force a wire, its frequency:
* Decreases * Increases
* Does not change * Sometimes increase or decrease
- (25) The waves which do not require any medium for their movement are called:
* Compressional wave * Mechanical waves
* Matter waves * Electromagnetic waves
- (26) Frequency which are multiple of fundamental are called:
* Beat frequency * Nodal frequency * Harmonics * Doppler frequency
- (27) When the tension in a string is increased four times the speed of wave in the string is:
* Halved * Doubled
* Reduced to one fourth * Increased 4 times
- (28) The frequency of wave produced in a stretched string depends upon:
* Length * Tension * Linear density * All of these
- (29) A wave enters from one medium to another no change occurs in:
* Frequency * Wavelength * Amplitude * Speed

ANSWER KEY

(1) Energy	(2) Electromagnetic waves
(3) Mechanical waves	(4) The particles of the medium are vibrating at right angle to the direction of wave motion
(5) The particles of the medium are vibrating along the direction of wave motion	(6) Transverse wave
(7) 2000Hz	(8) Remains constant
(9) Energy	(10) $v = \frac{1}{2L} \sqrt{\frac{T}{\mu}}$
(11) $\sqrt{\frac{T}{\mu}}$	(12) $\lambda/2$
(13) $\lambda/4$	(14) Decreases half
(15) $\lambda = 2L$	(16) Standing wave
(17) Sound wave	(18) 0.25Hz
(19) Mechanical waves	(20) 5Hz
(21) $v = \frac{\lambda}{T}$	(22) 0.5m/sec
(23) 1m	(24) Increases
(25) Electromagnetic waves	(26) Harmonics
(27) Doubled	(28) All of these
(29) Frequency	

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MULTIPLE CHOICE QUESTIONS (MCQs):

- (1) A decibel is a:
 - * Musical instrument
 - * Musical note & wave length
 - * Measure of intensity level
- (2) Beat are the result of:
 - * Diffraction
 - * Destructive interference only
 - * Constructive interference only
 - * Constructive and destruction interference both
- (3) Speed of sound waves does not depend upon:
 - * Wind speed
 - * Temperature
 - * Pressure
 - * Density
- (4) A 252Hz tuning fork produces four beats per second when sounded with another tuning fork of unknown frequency:
 - * 63Hz
 - * 256Hz
 - * 1008Hz
 - * 252Hz
- (5) We recognize the voice of friend over the telephone by virtue of:
 - * Quality
 - * Intensity
 - * Loudness
 - * Pitch
- (6) When the temperature of air rises, the speed of sound wave increases because:
 - * Only frequency increases
 - * Both frequency and wave length increases
 - * Only wave length increases
 - * Only wave length decreases
- (7) The relative intensity I/I_0 of the sound of a jet engine is 10^{13} . The intensity level in dB will be:
 - * 30
 - * 130
 - * 1300
 - * 1.3
- (8) Which of the following frequency of the sound wave is audible:
 - * 5Hz
 - * 5000Hz
 - * 2500KHz
 - * 50KHz
- (9) As a source of sound moves away from a stationary listener, there is an apparent frequency:
 - * Decreases in wave length
 - * Increase in pitch
 - * Decrease in phase
 - * Decrease in pitch
- (10) The Physical quantity which is related to loudness of sound is:
 - * Frequency
 - * Intensity
 - * Quality
 - * Wave length
- (11) When two vibrating bodies have slightly different frequency, they produce:
 - * Echo
 - * Beats
 - * Resonance
 - * Polarization
- (12) Which one of the following properties of sound is effected by the change in temperature:
 - * Amplitude
 - * Wave length
 - * Frequency
 - * Intensity
- (13) The unit of intensity level of sound is: * Watt * Joule * Decibel * Diopeter
- (14) The intensity level of sound of 10^{-12} watt/m² is a bell is:
 - * Zero
 - * One
 - * Two
 - * Three
- (15) The pitch of sound depends upon:
 - * Velocity
 - * Intensity
 - * Frequency
 - * Amplitude
- (16) Which of the following is compressional waves:
 - * Light wave
 - * Sound wave
 - * x-rays
 - * y-rays
- (17) Sone is the unit of:
 - * Intensity level
 - * Intensity of sound
 - * Pitch of sound
 - * Loudness of sound
- (18) The maximum number of beats / second that a human can detect is:
 - * 5
 - * 7
 - * 3
 - * 4
- (19) One sone at 1000 Hz is equal to: * 60d B * 40d B * 30d B * 100d B
- (20) The earthquake waves are the example of:
 - * Audible waves
 - * Infrasonic waves
 - * Shock waves
 - * Ultra sonic waves
- (21) When the temperature is increased by 10°C the speed of sound is:
 - * Increased by 610 cm /s
 - * Increased by 283 cm/s
 - * Decreased by 610 m/s
 - * Decreased by 283 cm/s
- (22) The wave length of sound is increased when:
 - * The source moves toward the listener
 - * The source moves away from the listener
 - * The listener moves toward the sources
 - * The listener moves away from the source
- (23) According to Weber Fechner law:
 - * $L \propto \log L/I_0$
 - * $L \propto \log I$
 - * $L \propto I$
 - * $L = I_0$
- (24) In aerodynamics the mach number is equal to:
 - * V/V_s
 - * $\frac{V}{V_s}$
 - * V^2/V_s
 - * $\frac{V_s}{V}$
- (25) The velocity of sound in vacuum at 0°C:
 - * 332m/sec
 - * 344m/s
 - * 330m/s
 - * 0
- (26) Power Law determines: * Power * Work * Intensity * Loudness of sound

ANSWER KEY

1. Measure of intensity level	2. Constructive and-destructive interference both.
3. Wind speed	4. 256Hz
5. Quality	6. Only wave length increases
7. 30	8. 5000Hz
9. Decrease in pitch	10. Intensity
11. Beats	12. Wave length
13. Decibel	14. Zero
15. Frequency	16. Sound wave
17. Loudness of sound	18. 7
19. 40 dB	20. Infrasonic waves
21. Increased by 610 cm /s	22. The source moves away from the listener
23. $L \propto \text{Log } I$	24. $\frac{v}{v_s}$
25. 0	26. Loudness of sound