OBJECTIVE TYPE QUESTIONS

Chapter # 8 - A

WAVE MOTION AND SOUND

1. The oscillatory motion in which the instantaneous acceleration is proportional to the displacement of the displacement of the oscillating bodies is called:
   (a) Elastic motion (b) Translating motion
   (c) Transverse motion (d) Harmonic motion
2. Total energy of a particle performing SHM is directly proportional to:
   (a) The amplitude (b) The square root of amplitude
   (c) Square of amplitude (d) The reciprocal of amplitude
3. When a particle is executing SHM it is found that.
   (a) The frequency depends upon the amplitude
   (b) The periods depend on the amplitude.
   (c) The period and frequency depend upon the amplitude
   (d) The period and frequency are independent of the amplitude.
4. When a stone is thrown in water, any circle draw with its centre as the stone is a.
   (a) Longitudinal wave (b) Stationary wave
   (c) Circular wave (d) Wave front
5. Which one of the following undergoing a simple harmonic motion?
   (a) Motion of a pendulum (b) vibration of a violen string.
   (c) Motion of body in a rectilinear (d) Oscillation of mass on a string
6. Mechanical wave are produced disturbance in
   (a) Vacuum (b) Space (c) Materiel (d) No of these
7. If a second pendulum is taken up on the moon, in order to have its time period same:
   (a) The length of the pendulum must be increased
   (b) The length of the pendulum must be decreases
   (c) The length of the pendulum must be kept the same
   (d) None of the above
8. An ordinary clock loses time in summer this is because:
   (a) The length of the pendulum increases
   (b) The length of the pendulum decreases
   (c) The length of the pendulum decreases and time period increases.
   (d) The length the pendulum decreases and time period increases.
9. Which is the true for gamma - rays?
   (a) They move with half the speed of light.
   (b) They are stopped by a thick sheet of paper.
   (c) The have no mass
   (d) The can not pass through a sheet of Aluminum.
10. Which one of the following contains a pair of transverse and longitudinal wave?
    (a) Radio & X - rays (b) Infra - red & ultra- violet
    (c) Sound & radio wave (d) Wave in a ripple tank & light
11. The velocity of a particle moving with a frequency 'f' and wave length 'λ' is:
    (a) $f\lambda$ (b) f/λ (c) λ/f (d) $\lambda^2 f$
12. The one which has the longest wave length in the following is?
    (a) Red light (b) X - rays
    (c) Infra – red (d) radio waves
13. Which of the following has the shortest wavelength?
    (a) Gamma rays (b) Ultraviolet
    (c) Microwaves (d) Radio waves
14. All the points on a wave front, formed by throw a stone in water will:
    (a) Be in the same phase (b) Have the same phase & displacement
    (c) Have the same displacement only (d) None of these
15. It is common characteristics of all types of wave motion that without the transport of particles.
    (a) Particles (b) Down
    (c) Energy transferred (d) Mass decrease
16. The wave length of a radio wave when transmitted as a frequency of 150 MHz, will be:
    (a) 20 m (b) 2 m (c) 10 m (d) 0.75 m
17. A simple pendulum completes one vibration in one second. If g = 981 sm/s^2 its length will be:
    (a) 24.8 m (b) 24.8 (c) 2.48 cm (d) 2.48 cm
18. When two waves traveling through the same medium arrive at the same medium arrive at the same point 180^o out of phase, they give rise to.
    (a) Polarization (b) Destructive
    (c) Diffraction (d) Constructive interferes
19. When a string which is tied at both the ends is plucked from the centre the wave produced is:
    (a) Transverse wave (b) Longitudinal wave

(c) Standing wave (d) Electromagnetic wave

20. The wave phenomenon that definitely classifies light as a transverse wave is.
(a) Polarization (b) Diffraction
(c) Interference (d) Scattering of electrons

21. Which of the following is not a transverse waves?
(a) x-rays (b) sound (c) γ-rays (d) infrared

22. The distance between adjacent nodes or antinodes is.
(a) λ (b) $\lambda/2$ (c) $\lambda/4$ (d) 2λ

23. Transverse waves can propagate:
(a) Both in gas and a metal (b) In a gas but not in metal
(c) not in gas but in a meta! (d) neither in any of these

24. The traveling wave in which particle of the disturbed medium move perpendicular to the direction of propagation of the wave is called.
(a) Longitudinal wave (b) Transverse wave
(c) Standing wave (d) Stationery wave

25. The direction travel by the transverse wave to the direction of the associated disturbance will be
(a) parallel (b) Angular (c) Perpendicular (d) Opposite

26. In a stretched string, if the length and speed of the wave is double, the tension will be _____ times the original.
(a) 2 (b) 4 (c) 8 (d) 6

27. Frequency of a stretched string is proportional to the
(a) Tension (b) linear density
(c) reciprocal of the length (d) Square of the tension

28. For a stationary wave in a string the points at which the particle is at maximum displacement from the mean position are called.
(a) Nodes (b) Anti nodes (c) Compression (d) Rare friction

29. A string fixed at two ends vibrates in two whole segment. The standing wave pattern set up is called.
(a) First overtone (b) Second overtone
(c) Fundamental (d) Second harmonics

30. When a wave is reflected from rigid support, the phase change will be equal to.
(a) $\lambda/2$ (b) λ (c) $\lambda/4$ (d) $.2\lambda$

Chapter # 8 - B
WAVE MOTION AND SOUND

1. Sound waves are:
   (a) Transverse waves (b) Electro-magnetic waves
   (c) Longitudinal wave (d) Standing waves
2. The difference between a noise and a musical note is that a noise is:
   (a) Louder (b) Of higher pitch
   (c) Louder and usually lower pitch (d) Formed by irregular vib
3. Which of the following properties of sound is affected by change
   (a) Frequency (b) Amplitude
   (c) Wave length (d) Intensity
4. The bodies travel at velocities greater than velocity of sound in air are called.
   (a) Ultrasonic (b) Infrasonic
   (c) Supersonic (d) Revelberator
5. Two sounds of the same frequency in air must have the same:
   (a) Amplitude (b) Intensity
   (c) Loudness (d) Wavelength
6. In order to emit sound a body must.
   (a) Absorb sound waves (b) Vibrate
   (c) Reflect sound waves (d) Move towards the hearer
7. Which of the following phenomenon cannot take place with sound wave:
   (a) Refection (b) Interference
   (c) Diffraction (d) Polarization
8. Velocity of sound in a gas is proportional to:
   (a) Square root of proportional elasticity (b) Adiabatic elasticity
   (c) Square root of adiabatic elasticity (d) Isothermal elasticity
9. Which of the following factor(s) effect(s) the velocity of sound in air?
   1. Frequency of the source 2. Loudness of the sound
   3. The temperature of the air.
   (a) 1 only (b) 2 only (c) 3 only (d) 1 and 3 only
10. Presence of moisture in air.
   (a) increases the velocity of sound (b) decreases the velocity of sound
   (c) may increases or decreases the velocity (d) does not have any effect
11. Speed of sound at 0^o in the air is:
   (a) 33.13 m/s (b) 3.313 m/s (c) 331.3 m/s (d) 3313 cm/s
12. The speed of sound in a compressible medium which has a bulk modulus B, and density p,
   (a) p = $\sqrt{B/P}$ (b) V = $\sqrt{B}/P$ (c) P = $\sqrt{P/B}$ (d) V = $\sqrt{P}/B$
13. Space of sound is _____ speed of light
   (a) greater then (b) les than (c) equal to (d) nothing can be said
14. In which of the following is the speed of sound greatest?
   (a) Air (b) Water (c) Vacuum (d) Steel
15. The velocity of sound in air is not affected by changes in the;
(a) Moisture content of the air (b) Temperature of the air
   (c) Atmospheric pressure (d) Compression of the air
16. Which one of the following is correct?
   (a) The louder the sound, the greater is the amplitude.
(b) The louder the-sound, the greater is the velocity
(c) The louder the sound, the greater is the frequency
   (d) The louder the sound, greater is the wavelength
17. The intensity level of faintest audible sound is:
   (a) 0 db (b) 10 bd (c) 20 bd (d) 20 db
18. The term loudness of a sound is most intimately with the:
   (a) Wave amplitude (b) wave intensity
   (c) intensity level of the sound (d) sound pitch
19. Pitch is a sensation produced by sound that depends upon its:
   (a) velocity (b) intensity (c) amplitude (d) Frequency
20. The pitch of the sound depends on its
   (a) Frequency (b) Speed (c) Amplitude (d) Period
21. The sweetness or harshness of a sound depends on its.
   (a) Wavelength (b) Frequency (c) Wave amplitude (d) Irregularity
22. The human ear is most sensitive sound in the frequency range from..
   (a) 2 to 4 hertz (b) 20 to 40 hertz
   (c) 200 to 400 hertz (d) 2000 to 4000/hertz

23. The term which bears the same relationship to light as pitch bears to sound.
(a) Wave length (b) Frequency (c) Colour (d) Shade.
24. The study of generation production and propagation sound is called:
(a) Photometry (b) Acoustics (c) Mechanics (d) Series
25. Quality is the difference in sounds having.
(a) Same pitch (b) Same loudness
(c) Different natural frequencies (d) All of the above.
26. Number of beats produced is equal to:
(a) Difference of frequencies of superimposing waves.
(b) Sum of frequencies of superimposing waves.
(c) Product of frequencies of superimposing waves.
(d) Ratio of frequencies of superimposing waves.
27. If the two sound waves produced beats, it is necessary that the two have.
(a) The same frequencies (b) Slightly different frequencies
(c) Slightly different amplitudes (d) The same time period
28. Beats are the result of:
(a) Diffraction (b) constructive interference
(c) Constructive and destructive interference (d) None of these
29. The sound waves give rise to the phenomenon of beats due to their.
(a) Reflection (b) Refraction
(c) Interference (d) Polarization
30. At the end of the open pipe
(a) Always a node is produced (b) Always an antinode is produced
(c) Both can be produced (d) none of the above
31. If a body is set to be in resonance with another body its natural frequency must be:
(a) half of that of the other body (b) vibrates in greatest amplitude
(c) Double of that of the other body (d) equal to that of the other body
32. A regiment of soldiers is crossing a suspension bridge. They are ordered to:
(a) A. March in steps (b) Break the Steps
(c) Twist their bodies (d) Lie flat and craw!
33. Listener moves towards stationary source. Pitch of sound heard.
(a) Increases (b) Decreases (c) Remains constant (d) zero
34. Doppler's move measures the change in _____ of wave due to the relative motion of source & observer.
(a) Intensity (b) Frequency (c) Velocity (d) Energy
35. Mark the false statement:
(a) Doppler effect is used in measuring the speed of automobile
(b) Doppler effect provides a method for tracking satellite
(c) Each proton has total energy E = hv (where h = plank's, v = frequency of the electromagnetic field's)
(d) X - rays are electromagnetic waves with long wavelength.

Chapter # 8 – A

1	2	3	4	5	6	7	8	9	10
d	C	d	d	c	C	b	A	c	c
11	12	13	14	15	16	17	18	19	20
a	D	a	a	c	B	b	B	c	a
21	22	23	24	25	26	27	28	29	30
b	B	c	b	c	C	b	D	b	b

Chapter # 8 – B

1	2	3	4	5	6	7	8	9	10
c	D	b	c	c	D	b	D	c	a
11	12	13	14	15	16	17	18	19	20
c	A	b	d	c	a	a	C	d	a
21	22	23	24	25	26	27	28	29	30
b	d	b	b	d	A	b	C	c	b
31	32	33	34	35					
d	b	a	b	d					