ECAT Physics Chapter 8 Waves Online Test

Sr	Questions	Answers Choice
1	When a body moves to and fro motion, this type of motion is called	A. translatory motion B. circular motion C. oscillatory motion D. all of them
2	When an oscillatory motion repeats itself, then this type of motion is called	A. vibratory motion B. constant motion C. fixed motion D. periodic motion
3	Example of vibratory motion is	A. mass suspended from a spring B. a bob of simple pendulum C. mass attached to a spring placed D. all of them
4	When a body is pulled away from its rest or equilibrium position and then released, the body oscillates due to	A. applied force B. momentum C. restoring force D. none of them
5	The restoring force always directed towards the	A. extreme position B. mean position C. both of them D. none of them
6	The force which opposes the applied force producing the displacement in the spring is called	A. restoring force B. periodic force C. centripetal force D. resistive force
7	The vibratory or oscillatory motion of a body is	A. translatory motion B. back and forth motion about its mean position C. free all motion D. circular motion
8	The vibratory motion of a body whose magnitude of acceleration is directly proportional to the magnitude of its displacement and is always directed towards the equilibrium position is called	A. rotatory motion B. motion under gravity C. angular motion D. simple harmonic motion
9	One complete round trip of the body about its mean position is called	A. displacement B. vibration C. a complete motion D. an acceleration
10	The time required to complete on vibration is called	A. frequency B. total time C. time period D. velocity
11	The number of vibrating body at any instant from its equilibrium position is called	A. displacement B. frequency C. amplitude D. time period
12	The maximum displacement of a body on either side of its equilibrium position is called	A. frequency B. amplitude C. displacement D. time period
13	For a body executing S. H. M, its	A. momentum remains constant B. potential energy remains constant C. kinetic energy remains constant D. total energy remains constant
14	When a body is performing S.H.M., its acceleration is	A. inversely proportional to the displacement B. directly proportional to the applied force C. directly proportional to the amplitude D. directly proportional to the displacement but in opposite direction

15	Which of the following is an example of a S.H.M?	A. motion of a projectile B. motion of a train along a circular path C. motion of swing D. electrons revolving sound the nucleus
16	Which of the following does not exhibit S.H.M?	A. a plucked violin string B. a mass attached to a spring C. a train shunting between two terminals D. a simple pendulum
17	If the displacement of a body executing S.H.M is plotted against time, then the curve is known as	A. frequency of S.H.M B. period of S.H.M C. wave form D. none of them
18	The wave form of S.H.M will be	A. square wave B. sine wave C. rectified wave D. saw-tooth wave
19	An object undergoes S.H.M has maximum speed when its displacement from the mean position is	A. maximum B. zero C. half of the maximum value D. one third of the maximum value
20	An object undergoes S.H.M has maximum acceleration when its displacement form the means position	A. maximum B. zero C. half of the maximum value D. one third of the maximum value
21	Si units of time period is	A. second B. hertz C. revolution D. vibration/sec
22	SI unit of frequency is	A. second B. hertz C. revolution D. vibrations/sec
23	The expression of Hook's law is	A. F=ma B. F=kx C. F= -kx D. -kx=ma
24	If F=0.04 N and X=4 cm then K=	A. 1 Nm⁻¹ B. 2 Nm⁻¹ C. 3 Nm⁻¹ D. 4 Nm⁻¹
25	The expression for restoring force is	A. F=ma B. F=kx C. F= -kx D. Kx=ma
26	Angular frequency 'w' is basically a characteristics of	A. linear motion B. circular motion C. both of them D. none of them
27	When half of the cycle of a body executing S.H.M is completed, then the phase of the vibration will be	A. 45° B. 90° C. 135° D. 180°
28	The instantaneous velocity of a body moving along a circle is directed	A. along the radius B. along the tangent C. away from the circle D. none of them
29	The characteristic of a body executing S.H.M is that its acceleration is	A. inversely proportional to displacement B. directly proportional to displacement C. independent of displacement D. equal to zero

30	The phase determines the	A. displacement B. amplitude C. frequency D. state of motion of vibrating body
31	Acceleration of the mass at any instant is given by	A. a=k/m x B. a= - m/k x C. a = - k/m x D. a=m/k x
32	A simple pendulum consists of a	A. small light bob B. small heavy bob C. big light bob D. big heavy bob
33	The bob of a simple pendulum is suspended by	A. string B. heavy inextensible string C. light extensible string D. light inextensible string
34	The weight 'mg' of the bob is resolved into	A. one component B. two components C. three components D. four components
35	If the length of second pendulum becomes four times then its time period will become	A. Four time B. Two times C. Six times D. Eight times
36	Time period of a simple pendulum depends upon the	A. length of the pendulum B. acceleration due to gravity C. none of them D. both of them
37	Time period of simple pendulum is independent of	A. length B. mass C. acceleration due to gravity D. none of them
38	If the length of a simple pendulum is 0.25 m its time period would be	A. 1.0 s B. 2.0 s C. 3.0 s D. 4.0 s
39	If the time period a simple pendulum is 2 s, its frequency would be	A. 2 Hz B. 1.5 Hz C. 1.0 Hz D. 0.5 Hz
40	When a mass 'm' is pulled slowly, the spring stretches by an amount x_0,then the average force would be	A. F= Kx₀ B. F=1/2Kx₀ C. F=2Kx₀ D. F=4Kx₀
41	When a mass 'm' is pulled slowly, the spring stretches by an amount x_o, then the work done will be	A. W=Kx_o B. W=1/2Kx_o C. W=1/2Kx² _o D. W=4Kx_o
42	When a mass 'm' is pulled slowly through a distance 'x_o' , the elastic potential energy of the spring would be	A. P.E=Kx² _o B. P.E= 1/2kx_o C. P.E=1/2Kx² _o D. P.E=Kx² _o
43	When the bob of simple pendulum is at extreme position, its K.E. will be	A. maximum B. minimum C. zero D. all of them
44	When the bob of simple pendulum is at mean position, its K.E will be	A. maximum B. minimum C. zero D. all of them
45	The total energy of spring mass system is	A. zero B. changing with time C. constant D. none of them
46	Energy is dissipated and consequently the energy mass system do not oscillate indefinitely because of	A. very small energy B. very large energy C. frictional forces D. acceleration due to gravity

47	If we increase the length of a simple pendulum four times, its time period will become	A. 2 times B. 3 times C. 4 times D. 6 times
48	If the mass of the simple pendulum becomes double, its time period	A. increase B. decreases C. remains constant D. none of them
49	A second's pendulum is a pendulum whose time period is	A. 1 second B. 2 seconds C. 3 seconds D. 4 seconds
50	The time period of pendulums of different lengths would be	A. same B. different C. both of them D. none of them
51	If a simple pendulum is shifted from karachi to K-2 cliff, its time period	A. remains the same B. decreases C. increases D. none of them
52	A body is executing free vibrations when it oscilates	A. with the interference of an external force B. without the interference of an external force C. with the interference of an internal force D. none of them
53	The frequency of free vibrations is known as	A. free frequency B. forced frequency C. natural frequency D. un-natural frequency
54	The natural frequency of a pendulum which is vibrating freely, depends upon its	A. mass B. length C. material D. all of them
55	If a freely oscillating system is subjected to an external force, then	A. free vibrations will take place B. the body will move with its natural frequency C. forced vibrations will take place D. none of them
56	A physical system under going forced vibrations is known as	A. Simple harmonic oscillator B. Compound harmonic oscillator C. Physical harmonic oscillator D. driven harmonic oscillator
57	The vibrations of factory floor caused by the running of heavy machinery is an example of	A. free vibration B. natural vibrations C. forced vibrations D. all of them
58	Associated with the motion of a driven harmonic oscillator, there is a very striking phenomenon, know as	A. waves B. beat C. interference D. resonance
59	If the external driving force is periodic with a period compareable to the natural period of the oscillator, then we get	A. diffraction B. beat C. interference D. resonance
60	In a resonance situation the amplitude of the motion may become extra ordinarily large, if	A. the driving force is large B. the driving force is zero C. the driving force may be feeble D. all of them
61	At 'resonance' the transfer of energy from deriving source to the oscillator is	A. maximum B. minimum C. zero D. none of them
62	Resonance occurs when one of the natural frequencies of vibration of the forced or driven harmonic oscillator	A. greater than the frequency of applied force B. equal to the frequency of applied force C. less than the frequency of applied force D. all of them
		A. swing

63	Which one of the following is an example of resonance	B. tuning a radio C. microwave oven D. all of them
64	A swing has	A. one natural frequency B. two natural frequencies C. three natural frequencies D. four natural frequencies
65	The waves produced in a microwave oven have frequency	A. 2450 Hz B. 2450 K Hz C. 2450 M Hz D. 2450 G Hz
66	The waves produced in a microwave oven have wavelength.	A. 12 mm B. 12 cm C. 12 m D. 12 mm
67	Such oscillations in which the amplitude decreases steadily with time, are called	A. resonance B. force oscillations C. large oscillations D. damped oscillations
68	While describing the motion of a simple pendulum, the frictional effects are	A. taken into account B. completely ignored C. partially ignored D. none of them
69	As the bob of the pendulum moves to and fro which of the force is experienced by the bob	A. its weight B. tension in the string C. viscous drag force by air D. all of them
70	The process in which energy is dissipated from the oscillating system is known as	A. resonance B. interference C. diffraction D. damping
71	Shock absorber of the car is an example of	A. resonance B. forced oscillations C. interference D. damped oscillations
72	In the resonance condition, the amplitude of the oscillator becomes	A. very large B. very small C. zero D. any one of them
73	The resonance will be sharp, if the amplitude decreases rapidly at a frequency	A. equal to the resonant frequency B. slight different from the resonant frequency C. greatly different from the resonant frequency D. any one of them
74	The damping depends upon the	A. amplitude B. sharpness C. both of them D. none of them
75	Smaller the damping, greater will be the	A. frequency B. wavelength C. amplitude D. none of them
76	Smaller the damping, the resonance will be	A. more flat B. more sharp C. both of them D. none of them
77	A heavily damped system has a fairly	A. sharp resonance curve B. flat resonance curve C. both of them D. none of them
78	A weakly damped system has fairly	A. sharp resonance curve B. flat resonance curve C. both of them D. none of them
79	Waves transport energy	A. without transport energy B. with matter C. both of them D. none of them
80	Wave disturbances may also come in a concentrated bundle, like shock wave from an aeroplane flying at	A. subsonic speed B. sonic speed C. super sonic speed

	aeroplane flying at	C. super sonic speed D. any one of them
81	The waves which propagate by the collision of material particles are known as	A. e.m. waves B. mechanical waves C. light waves D. microwaves
82	The waves which propagate out in space due to oscillation of electric and magnetic fields are known as	A. e.m. waves B. mechanical waves C. sound waves D. water waves
83	The example of mechanical wave is	A. waves in ropes B. waves on water surface C. waves in air D. all of them
84	In case of mechanical waves, we study the motion of	A. a single particle B. collection of particle C. any one of them D. none of them
85	A wave, which transfer energy by moving away from the source of disturbance is called a	A. progressive wave B. travelling wave C. both of them D. none of them
86	Example of progressive wave is	A. transverse waves B. longitudinal waves C. both of them D. none of them
87	The waves in which the particles of the medium are displaced in a direction perpendicular to the direction of propagation of waves are known as	A. longitudinal waves B. transverse waves C. non-mechanical waves D. none of them
88	The waves in which the particles of the medium have displacement along the direction of propagation of waves are called	A. longitudinal waves B. transverse waves C. non-mechanical waves D. none of them
89	Which type of wave can be set up in solids	A. longitudinal waves B. transverse waves C. both of them D. none of them
90	When sound waves travel from air to water which of these remains constant?	A. Velocity B. Frequency C. Wavelength D. All the above
91	Two sources of sound are said to be coherent if	A. The produce sounds of equal intensity B. They produce sounds of equal frequency C. They produce sound waves vibrating with the same phase D. They produce sound waves with zero or constant phase difference all instant of time
92	The temperature at which the speed of sound becomes double as was at 27°C is	A. 273°C B. 0°C C. 927°C D. 1027°C
93	For production of beats the two sources must have	A. Different frequencies and same amplitude B. Different frequencies C. Different frequencies, same amplitude and same phase D. Different frequencies and same phase
94	If the amplitude of sound is doubled and the frequency reduced to one-fourth, the intensity of sound at the same point will be	A. Increasing by a factor of 2 B. Decreasing by a factor of 2 C. Decreasing by a factor of 4 D. Unchanged
		A. Energy, momentum and mass

95	With the propagation of a longitudinal wave through a material medium, the quantities transmitted in the propagation direction are	B. Energy C. Energy and mass D. Energy and linear momentum
96	At a certain instant a stationary transverse wave is found to have maximum kinetic energy. The appearance of string of that instant is	A. Sinusoidal shape with amplitude A/3 B. Sinusoidal shape with amplitude A/2 C. Sinusoidal shape with amplitude A D. Straight line
97	Velocity of sound in a diatomic as is 300 m/sec. what is its rms velocity?	A. 400 m/sec B. 40 m/sec C. 430 m/sec D. 300 m/sec
98	Mechanical waves on the surface of a liquid are	A. Transverse B. Longitudinal C. Torsional D. both transverse and longitudinal
99	Which waves are used in sonography?	A. Microwaves B. Infra red waved C. Sound waves D. Ultrasonic waves
100	Laplace formula is derived from	A. Isothermal change B. Adiabatic change C. Isobaric change D. None of these
101	Which of the following is the longitudinal waves?	A. Sound waves B. Waves on plucked string C. Water waves D. Light waves
102	Which one is not produced by sound waves in air?	A. Polarization B. Diffraction C. Refraction D. Reflection
103	Energy is not carried by	A. Transverse progressive waves B. Longitudinal vibration C. Stationary waves D. Electromagnetic
104	What is frequency of radio waves transmitted by a station, if the wavelength of those waves is 300 m?	A. 1 MHz B. 10 Hz C. 1 GHz D. 100000 Hz
105	Velocity of sound in vacuum (in m/s) is	A. 330 B. 1000 C. 156 D. 0
106	The velocity of sound is greatest in	A. Water B. Air C. Vacuum D. Metal
107	In the production of beats by 2 waves of same amplitude and nearly same frequency, the maximum intensity to each of the constituent waves is	A. Same B. 2 times C. 4 times D. 8 times
108	When two progressive waves of nearly same frequencies superimpose and give rise to beats, then	A. Frequency of beat changes with time B. Frequency of beat changes with location of observer C. All particles of medium vibrate simple harmonically with frequency equal to the difference between frequencies of component waves D. Amplitude of vibration of particles at any point changes simple harmonically with frequency equal to difference between two component waves
109	Two sound waves of slightly different frequencies propagating in the same direction produce beats due to	A. Interference B. Diffraction C. Polarization D. Refraction
		A. 60°

110	It two waves of amplitude 'a' produce a resultant wave of amplitude a, then the phase difference between them will be	B. 90° C. 120° D. 180°
111	The velocity of sound at same temperature is maximum in	A. H₂ B. N₂ C. O₂ D. NH₃
112	The waves moving from a sitar to a listener in air are	A. Longitudinal progressive B. Longitudinal stationary C. Transverse progressive D. Transverse stationary
113	Sound waves in air always	A. Longitudinal B. Transverse C. Stationary D. Electromagnetic
114	A stationary sound wave has frequency 165 Hz (speed of sound in air = 330 m/s) then distance between two consecutive nodes is	A. 2 m B. 1 m C. 0.5 m D. 4 m
115	Decibel is unit of	A. Intensity of light B. x-ray radiation capacity C. sound loudness D. Energy of radiation
116	Through which character we can distinguish the light waves from sound waves	A. Interference B. Refraction C. Polarization D. Reflection
117	There is no net transfer of energy by particle of medium in	A. Longitudinal wave B. Transverse wave C. Progressive wave D. Stationary wave
118	Data transmitted along glass-fiber cables is in the form of pulses of monochromatic red light each of duration 2.5 ns. Which of the following is the best estimate of the number of wavelength in each pulse?	A. 10³ B. 10⁶ C. 10⁹ D. 10¹²
119	Progressive waves of frequency 300 Hz are superimposed in produced a system of stationary waves in which adjacent nodes are 1.5 m apart. What is the speed of the progressive waves?	A. 100 ms⁻¹ B. 200 ms⁻¹ C. 450 ms⁻¹ D. 900 ms⁻¹
120	Ultra-violet rays differ from X-rays in that they	A. Cannot be diffracted B. Cannot be polarized C. Have a lower frequency D. Are deviated when they pass through a magnetic field
121	The principle of superposition states that	A. The total displacement due to several waves is the sum of the displacement due to those waves acting individually B. Two stationary waves superimpose to give two progressive waves C. A diffraction pattern consists of many interference patterns superimposed on one another D. Two progressive waves superimpose to give a stationary wave
122	Which one of the following could be the frequency of ultraviolet radiation?	A. 1.0 x 10⁶Hz B. 1.0 x 10⁹Hz C. 1.0 x 10¹²Hz D. 1.0 x 10¹⁵Hz
123	If a wave can be polarized, it must be	A. An electromagnetic wave B. A longitudinal wave C. A progressive wave D. A transverse wave
124	When temperature increase, the frequency of a tuning fork	A. Increases B. Decreases C. Remains same D. Increase or decreases depending on the material

		on the material
125	In stationary waves	A. Energy is uniformly distributed B. Energy is minimum at nodes and maximum at antinodes C. Energy is maximum at nodes and minimum at antidotes D. Alternating maximum and minimum energy producing at nodes and antinodes
126	The velocity of sound in air depends upon	A. Density and elasticity of gas B. Pressure C. Wavelength D. Amplitude and frequency of sound
127	Which of the following changes at an antinode in a stationary wave?	A. Density only B. Pressure only C. Both pressure and density D. Neither pressure nor density
128	When two waves with same frequency and constant phase difference phase difference interfere	A. There is a gain of energy B. There is a loss of energy C. The energy is redistributed and the distribution changes with time D. The energy is redistributed and the distribution remains constant with time
129	The speed of sound in a medium depends on	A. The elastic property but not on the inertia property B. The inertia property but not on the elastic property C. The elastic property as well as the inertia property D. Neither the elastic property nor the inertia property
130	To hear a clear echo, the reflecting surface must be at a minimum distance of	A. 10 m B. 16.5 m C. 33 m D. 66 m
131	If two waves of length 50 cm and 51 cm produced 12 beats per second, the velocity of sound is	A. 360 m/s B. 306 m/s C. 331 m/s D. 340 ms
132	It is possible to recognize a person by hearing his voice even if he is hidden behind a solid wall. This is due to the fact that his voice	A. Has a definite pitch B. Has a definite quality C. Has a definite capacity D. Can penetrate the wall
133	The ratio of velocity of sound in air at 4 atm pressure and that at 1 atm pressure would be	A. 1 : 2 B. 4 : 1 C. 1 : 4 D. 2 : 1
134	The velocity of sound in air not effected by changes in	A. Moisture contents in air B. Temperature of air C. The atmosphere pressure D. The composition of air
135	The loudness and pitch of a sound note depends on	A. Intensity and velocity B. Frequency and velocity C. Intensity and frequency D. Frequency and number of harmonic
136	Fidelity refers to	A. Reproduction of original sound B. Reproduction of original image C. Reproduction of music D. Reproduction of a CD from original copy
137	The waves which propagate through the oscillations of material particles are known as:	A. Mechanical waves B. Electromagnetic waves C. Any of them D. None of them
138	The waves which propagate out in the space due to oscillations of electric and magnetic fields are called:	A. Mechanical waves B. Electromagnetic waves C. Matter waves D. All of them
139	Which of the following is/are example/s if mechanical waves i.e. waves generated in _____:	A. Rope B. Coil of spring C. Water D. All of them

140	When a wave is travels from one place to another, it transfers:	A. Matter B. Energy C. Momentum D. Both B and C
141	Which of the following is not mechanical wave?	A. Sound wave B. Light wave C. wave produced in spring D. None of them
142	Longitudinal waves are also called:	A. Congressional waves B. Transverse waves C. Radio waves D. None of them
143	The distance covered by the wave during one period is called its:	A. Wave number B. Frequency C. Wavelength D. Time period
144	The distance covered by the wave in one second is:	A. Wave number B. Wave length C. Frequency D. Wave speed
145	A traveling wave has a shape of:	A. Square wave B. Sine wave C. Parabola D. hyperbola
146	In the same medium, velocity of the wave:	A. Goes on increasing B. Remains constant C. Goes on decreasing D. None of these
147	The square of 0.4 is:	A. Greater than 0.4 B. Smaller than 0.4 C. Equal to 0.4 D. None of them
148	A string is stretched between two points and is plucked at right angles to its length, the vibration produced is:	A. Longitudinal wave B. Transverse wave C. No vibration at all D. None of them
149	In compressional wave,the layer of medium having reduced pressure is called:	A. Compression B. Elasticity C. Node D. Rarefaction
150	Transverse waves can be set up:	A. Solids B. Liquids C. Gases D. All of them
151	Fluids can transmit:	A. Transverse wave B. Compressional wave C. Both of them D. None of them
152	In solids, only following type/s of wave can travel:	A. Transverse B. Longitudinal C. Both A and B D. None of them
153	Which of the following medium/media can transmit both transverse and longitudinal waves:	A. Solids B. Liquids C. Gases D. All of them
154	Which one of the following elasticizes is possessed by fluids:	A. Young's elastic modulus (length) B. Bulk elastic modulus (volume) C. Modulus of rigidity (shape) D. None of these
155	In the formula for finding the speed of waves in the spring, unit of m in SIn units is:	A. kg B. kg-meter C. kg/meter D. Meter/kg
156	When the particles of the medium vibrate about their mean position, along the direction of the motion of waves, then the waves are called:	A. Longitudinal waves B. Transverse waves C. Water waves D. Complex waves
157	SI unit of wave length is:	A. Kilometer B. Metre

157	SI unit of wave length is:	C. Centimetre D. Hertz
158	The portion of the water above its mean level forms a:	A. Crest B. Trough C. Both A and B D. None of these
159	In transverse waves, the individual particles of the medium move:	A. In circles B. Perpendicular to the direction of level C. Parallel to the direction of level D. None of these
160	Crests and troughs are formed in:	A. Longitudinal waves B. Transverse waves C. Both of these D. None of these
161	Of the following, the option _____ reminds of longitudinal waves.	A. Sound waves B. Heat waves C. Electromagnetic waves D. Light waves
162	Which one of the following wave motions is transverse:	A. Wave motion produced in water when a piece of stone is thrown into it B. Pulling of weight hanging vertically with a spiral spring C. Both of these D. None of these
163	If one end of a rubber cord is fixed with a support and the other end is wiggled by hand, the waves generated on the card are:	A. Stationary waves B. Transverse waves C. Both of these D. None of these
164	The wave motion set up in any medium depends upon:	A. Elasticity B. Inertia C. Density D. All of these
165	transverse wave motion is possible in:	A. Air B. A mixture of NH₃and O₂ C. Strings D. All of these
166	For transmission of both transverse and longitudinal waves, we can use:	A. Solid B. Gas C. Plasma D. None of these