Physics ECAT Pre Engineering Chapter 8 Waves Online Test

Sr	Questions	Answers Choice
1	The total energy of spring mass system is	A. zero B. changing with time C. constant D. none of them
2	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
3	Waves transport energy	A. without transport energy B. with matter C. both of them D. none of them
4	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
5	In the resonance condition, the amplitude of the oscillator becomes	A. very large B. very small C. zero D. any one of them
6	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
7	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
8	When sound waves travel from air to water which of these remains constant?	A. Velocity B. Frequency C. Wavelength D. All the above
9	Crests and troughs are formed in:	A. Longitudinal waves B. Transverse waves C. Both of these D. None of these
10	Which one of the following is an example of resonance	A. swing B. tuning a radio C. microwave oven D. all of them
11	The distance covered by the wave during one period is called its:	A. Wave number B. Frequency C. Wavelength D. Time period
12	The waves moving from a sitar to a listener in air are	A. Longitudinal progressive B. Longitudinal stationary C. Transverse progressive D. Transverse stationary
13	Energy is not carried by	A. Transverse progressive waves B. Longitudinal vibration C. Stationary waves D. Electromagnetic
		A. diffraction

14	If the external driving force is periodic with a period compareable to the natural period of the oscillator, then we get	B. beat C. interference D. resonance
15	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
16	When temperature increase, the frequency of a tuning fork	A. Increases B. Decreases C. Remains same D. Increase or decreases depending on the material
17	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
18	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
19	The time required to complete on vibration is called	A. frequency B. total time C. time period D. velocity
20	At 'resonance' the transfer of energy from deriving source to the oscillator is	A. maximum B. minimum C. zero D. none of them
21	The phase determines the	A. displacement B. amplitude C. frequency D. state of motion of vibrating body
22	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
23	Which of the following is not mechanical wave?	A. Sound wave B. Light wave C. wave produced in spring D. None of them
24	transverse wave motion is possible in:	A. Air B. A mixture of NH₃and O₂ C. Strings D. All of these
25	A heavily damped system has a fairly	A. sharp resonance curve B. flat resonance curve C. both of them D. none of them
26	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
27	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
28	The maximum displacement of a body on either side of its equilibrium position is called	A. frequency B. amplitude C. displacement D. time period
29	In the same medium, velocity of the wave:	A. Goes on increasing B. Remains constant C. Goes on decreasing D. None of these
30	Fluids can transmit:	A. Transverse wave B. Compressional wave C. Both of them D. None of them
		A. the driving force is large B. the driving force is zero

31	In a resonance situation the amplitude of the motion may become extra ordinarily large, if	D. the driving force is zero C. the driving force may be feeble D. all of them
32	The waves produced in a microwave oven have frequency	A. 2450 Hz B. 2450 K Hz C. 2450 M Hz D. 2450 G Hz
33	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
34	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
35	Which of the following is the longitudinal waves?	A. Sound waves B. Waves on plucked string C. Water waves D. Light waves
36	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
37	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
38	The wave form of S.H.M will be	A. square wave B. sine wave C. rectified wave D. saw-tooth wave
39	When a wave is travels from one place to another, it transfers:	A. Matter B. Energy C. Momentum D. Both B and C
40	In compressional wave,the layer of medium having reduced pressure is called:	A. Compression B. Elasticity C. Node D. Rarefaction
41	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
42	Shock absorber of the car is an example of	A. resonance B. forced oscillations C. interference D. damped oscillations
43	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
44	The portion of the water above its mean level forms a:	A. Crest B. Trough C. Both A and B D. None of these
45	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
46	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
47	The example of mechanical wave is	A. waves in ropes B. waves on water surface C. waves in air

		D. all of them
48	The waves produced in a microwave oven have wavelength.	A. 12 mm B. 12 cm C. 12 m D. 12 mm
49	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
50	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
51	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
52	Transverse waves can be set up:	A. Solids B. Liquids C. Gases D. All of them
53	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
54	With the propagation of a longitudinal wave through a material medium, the quantities transmitted in the propagation direction are	A. Energy, momentum and mass B. Energy C. Energy and mass D. Energy and linear momentum
55	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
56	The damping depends upon the	A. amplitude B. sharpness C. both of them D. none of them
57	The number of vibrating body at any instant from its equilibrium position is called	A. displacement B. frequency C. amplitude D. time period
58	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
59	The weight 'mg' of the bob is resolved into	A. one component B. two components C. three components D. four components
60	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
61	Mechanical waves on the surface of a liquid are	A. Transverse B. Longitudinal C. Torsional D. both transverse and longitudinal
62	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
63	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
64	The velocity of sound is greatest in	A. Water B. Air C. Vacuum D. Metal
65	Which one is not produced by sound waves in air?	A. Polarization B. Diffraction C. Refraction D. Reflection
66	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
67	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
68	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
69	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
70	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
71	The velocity of sound at same temperature is maximum in	A. H₂ B. N₂ C. O₂ D. NH₃
72	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
73	Laplace formula is derived from	A. Isothermal change B. Adiabatic change C. Isobaric change D. None of these
74	The time period of pendulums of different lengths would be	A. same B. different C. both of them D. none of them
75	Velocity of sound in vacuum (in m/s) is	A. 330 B. 1000 C. 156 D. 0
76	Sound waves in air always	A. Longitudinal B. Transverse C. Stationary D. Electromagnetic
77	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
78	In solids, only following type/s of wave can travel:	A. Transverse B. Longitudinal C. Both A and B

		D. None of them
79	The expression of Hook's law is	A. F=ma B. F=kx C. F= -kx D. -kx=ma
80	Of the following, the option _____ reminds of longitudinal waves.	A. Sound waves B. Heat waves C. Electromagnetic waves D. Light waves
81	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
82	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
83	If the mass of the simple pendulum becomes double, its time period	A. increase B. decreases C. remains constant D. none of them
84	A weakly damped system has fairly	A. sharp resonance curve B. flat resonance curve C. both of them D. none of them
85	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
86	There is no net transfer of energy by particle of medium in	A. Longitudinal wave B. Transverse wave C. Progressive wave D. Stationary wave
87	The frequency of free vibrations is known as	A. free frequency B. forced frequency C. natural frequency D. un-natural frequency
88	Longitudinal waves are also called:	A. Congressional waves B. Transverse waves C. Radio waves D. None of them
89	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
90	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
91	Two sound waves of slightly different frequencies propagating in the same direction produce beats due to	A. Interference B. Diffraction C. Polarization D. Refraction
92	The velocity of sound in air depends upon	A. Density and elasticity of gas B. Pressure C. Wavelength D. Amplitude and frequency of sound
93	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
94	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
95	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
96	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
97	A swing has	A. one natural frequency B. two natural frequencies C. three natural frequencies D. four natural frequencies
98	The restoring force always directed towards the	A. extreme position B. mean position C. both of them D. none of them
99	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
100	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
101	For transmission of both transverse and longitudinal waves, we can use:	A. Solid B. Gas C. Plasma D. None of these
102	Which waves are used in sonography?	A. Microwaves B. Infra red waved C. Sound waves D. Ultrasonic waves
103	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
104	The expression for restoring force is	A. F=ma B. F=kx C. F= -kx D. Kx=ma
105	The bob of a simple pendulum is suspended by	A. string B. heavy inextensible string C. light extensible string D. light inextensible string
106	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
107	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
108	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
109	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
110	Smaller the damping, greater will be the	A. frequency B. wavelength C. amplitude D. none of them
111	A second's pendulum is a pendulum whose time period is	A. 1 second B. 2 seconds C. 3 seconds D. 4 seconds

		D. 4 seconds
112	In the formula for finding the speed of waves in the spring, unit of m in Sln units is:	A. kg B. kg-meter C. kg/meter D. Meter/kg
113	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
114	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
115	SI unit of wave length is:	A. Kilometer B. Metre C. Centimetre D. Hertz
116	Decibel is unit of	A. Intensity of light B. x-ray radiation capacity C. sound loudness D. Energy of radiation
117	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
118	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
119	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
120	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
121	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
122	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
123	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
124	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
125	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
126	SI unit of frequency is	A. second B. hertz C. revolution D. vibrations/sec
		A. small light bob

127	A simple pendulum consists of a	A. small light bob B. small heavy bob C. big light bob D. big heavy bob
128	Time period of simple pendulum is independent of	A. length B. mass C. acceleration due to gravity D. none of them
129	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
130	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
131	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
132	Which type of wave can be set up in solids	A. longitudinal waves B. transverse waves C. both of them D. none of them
133	Such oscillations in which the amplitude decreases steadily with time, are called	A. resonance B. force oscillations C. large oscillations D. damped oscillations
134	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
135	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
136	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
137	Which of the following medium/media can transmit both transverse and longitudinal waves:	A. Solids B. Liquids C. Gases D. All of them
138	It two waves of amplitude 'a' produce a resultant wave of amplitude a, then the phase difference between them will be	A. 60° B. 90° C. 120° D. 180°
139	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
140	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
141	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 D. any one of them
142	A traveling wave has a shape of:	A. Square wave B. Sine wave C. Parabola D. hyperbola

143	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
144	The distance covered by the wave in one second is:	A. Wave number B. Wave length C. Frequency D. Wave speed
145	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
146	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
147	One complete round trip of the body about its mean position is called	A. displacement B. vibration C. a complete motion D. an acceleration
148	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
149	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
150	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
151	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
152	The process in which energy is dissipated from the oscillating system is known as	A. resonance B. interference C. diffraction D. damping
153	Si units of time period is	A. second B. hertz C. revolution D. vibration/sec
154	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
155	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
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	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<span style="color: rgb(84, 84, 84); font-family: arial, sans-serif; font-

		size: small;">° D. 180°
158	Through which character we can distinguish the light waves from sound waves	A. Interference B. Refraction C. Polarization D. Reflection
159	Smaller the damping, the resonance will be	A. more flat B. more sharp C. both of them D. none of them
160	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
161	The wave motion set up in any medium depends upon:	A. Elasticity B. Inertia C. Density D. All of these
162	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
163	Angular frequency 'w' is basically a characteristics of	A. linear motion B. circular motion C. both of them D. none of them
164	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
165	Example of progressive wave is	A. transverse waves B. longitudinal waves C. both of them D. none of them
166	The natural frequency of a pendulum which is vibrating freely, depends upon its	A. mass B. length C. material D. all of them