ECAT Pre General Science Online Test

Sr	Questions	Answers Choice
1	Good absorbers of heat are	A. Poor emitters B. Non emitters C. Good emitters D. Highly polarized
2	On a cold morning a metal surface will fell colder to touch than a wooden surface, because	A. Metal has high specific heat B. Metal has high thermal conductivity C. Metal has low specific heat D. Metal has low thermal conductivity
3	Heat travels through vacuum by	A. Conduction B. Convection C. Radiation D. Both A and B
4	For making cooking utensils, which of the following pairs of properties is most suited?	A. Low specific heat and high conductivity B. Low specific heat and low conductivity C. High specific heat and high conductivity D. High specific heat and low conductivity
5	If a liquid is heated in weightlessness, the heat is transmitted through	A. Conduction B. Convection C. Radiation D. Neither, because the liquid cannot be heated in weightlessness
6	The coefficient of linear expansion of iron is 0.000011 per°K. An iron rod is 10 metre long at 27°C. The length of the rod will be decreased by 1.1 mm when the temperature of the rod changes to	A. 0°C B. 10°C C. 17°C D. 20°C
7	Two metal rods A and B have their initial lengths in the ratio 2 : 3 and coefficients of linear expansion in the ratio 4 : 3. When they are heated through same temperature difference the ratio of their linear expansion is	A. 1 : 2 B. 2 : 3 C. 3 : 4 D. 8 : 9
8	The length of a metallic rod is 5 meter at 100°C. The coefficient of cubical expansion of the metal will be	A. 2.0×10^{-5}/°C B. 4.0×10^{-5}/°C C. 6.0×10^{-5}/°C D. 2.33×10^{-5}/°C
9	Hydrogen and helium of same volume V at same telmperature T and same pressure P are mixed to have same volume V. The resulting pressure of the mixtures will be	A. R/2 B. P C. 2P D. Depending on the relative mass of the gases
10	The kinetic energy of one molecule of a gas at normal temperature and pressure will be (k = 8.31 J/mole K) :	A. 1.7×10^3 J B. 10.2×10^3 J C. $3..4 \times 10^3$ J D. 6.8×10^3 J

11	At constant temperature, on increasing the pressure of a gas by 5%, its volume. The final temperature of the gas will be	A. 81 K B. 355 K C. 627 K D. 627°C
12	On colliding in a closed container, the gas molecules	A. Transfer momentum to the walls B. Momentum becomes zero C. Move in opposite directions D. Perform Brownian motion
13	At absolute temperature, the kinetic energy of the molecules	A. Becomes zero B. Becomes maximum C. Becomes minimum D. Remain constant
14	Pressure exerted by a gas is	A. Independent of density of the gas B. Inversely proportional to the density of the gas C. Directly proportional to the square of the density of the gas D. Directly proportional to the density of the gas
15	The temperature of gas is produced by	A. At potential energy of its molecules B. The kinetic energy of its molecules C. The attractive force between its molecules D. The repulsive force between its molecules
16	If the volume of the gas is to be increased by 4 times, then	A. Temperature and pressure must be doubled B. At constant P the temperature must be increased by 4 times C. At constant T the pressure must be increased by four times D. It cannot be increased
17	A real gas can be approximated to an ideal gas at	A. Low density B. High pressure C. High density D. Low temperature
18	If R is gas constant for 1 gram mole, C_p and C_v are specific heat for a solid then	A. $C_p - C_v = R$ B. $C_p - C_v < R$ C. $C_p - C_v = 0$ D. $C_p - C_v > R$
19	Triple point of water is	A. 273.16 °F B. 372.16K C. 273.16 °F D. 273.16
20	Rate of diffusion is	A. Faster in solids than in liquids and gases B. Faster in liquids than in solids and gases C. Equal to solids, liquids and gases D. Faster in gases than in liquids and solids
21	Pressure of a gas at constant volume is proportion to	A. Total energy of gas B. Average P.E to molecules C. Average K.E of molecules D. Total internal energy of gas
22	According to kinetic theory of gases, molecules of a gas behave like	A. Inelastic spheres B. Perfectly elastic rigid sphere C. Perfectly elastic non-rigid spheres D. Inelastic non-rigid spheres
23	10 c.c. each of oxygen and hydrogen are kept in separate flasks. Then which of the following relations is correct?	A. Each have same number of molecules B. Don't have same number of molecules C. Can't be predicted D. None

24	An isochoric process is one which take place at	A. Constant internal energy B. Constant entropy C. Constant volume D. Constant pressure
25	Brownian motion increases due to	A. Increase in size of Brownian particle B. Increase in temperature of medium C. Increase in density of medium D. Increase in viscosity of medium
26	If the ratio of densities of two gases is 1:4, then the ratio of their rates of diffusion into one another is	A. 2 : 1 B. 4 : 1 C. 1 : 4 D. 3 : 4
27	The volume of a gas will be double of what it is at 0°C (pressure remaining constant) at	A. 546 K B. 273 K C. 546°C D. 273°C
28	Energy gas behaves like an ideal gast at	A. High temperature and low pressure B. Low temperature and high pressure C. Both A and B D. None
29	R.M.S velocity of a particle is V at pressure P. If pressure increases by two times, then R.M.S velocity becomes	A. 2V B. 3V C. 0.5V D. V
30	Maximum density of H_2O is at the temperature	A. 32°F B. 39.2°F C. 42°F D. 4°F
31	At O° K which of the following properties of a gas will be zero?	A. Kinetic energy B. Potential energy C. Vibrational energy D. Density
32	The product of the pressure and volume of an ideal gas is	A. A constant B. Approximately equal to the universal gas constant C. Directly proportional to its temperature D. Inversely proportional to its temperature
33	Boyle's law is applicable in	A. Isochoric process B. Isothermal process C. Isobaric process D. Isotonic process
34	Absolute temperature can be calculated by	A. Means squares velocity B. Motion of the molecule C. Both A and B D. None of these
35	Which of the following is not thermo dynamical function?	A. Enthalpy B. Work done C. Gibb's energy D. Internal energy
36	At constant volume temperature is increased. Then	A. Collision on walls will be less B. Number of collisions per unit time will increase C. Collision will be in straight lines D. Collision will not change
37	The number of translation degress of freedom for a diatomic gas is	A. 2 B. 3 C. 5 D. 6
		A. Reproduction of original sound B. Reproduction of original image

38	Fidelity refers to	B. Reproduction of original image C. Reproduction of music D. Reproduction of a CD from original copy
39	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
40	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
41	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
42	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
43	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
44	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
45	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
46	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
47	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
48	The velocity of sound in air depends upon	A. Density and elasticity of gas B. Pressure C. Wavelength D. Amplitude and frequency of sound
49	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
50	When temperature increase, the frequency of a tuning fork	A. Increases B. Decreases C. Remains same D. Increase or decreases depending on the material
51	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
52	Which one of the following could be the frequency of ultraviolet radiation?	A. 1.0×10^{6} Hz B. 1.0×10^{9} Hz C. 1.0×10^{12} Hz D. 1.0×10^{15} Hz
		A. The total displacement due to several waves is the sum of the

53	The principle of superposition states that	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
54	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
55	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}
56	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. 10^3 B. 10^6 C. 10^9 D. 10^{12}
57	There is no net transfer of energy by particle of medium in	A. Longitudinal wave B. Transverse wave C. Progressive wave D. Stationary wave
58	Through which character we can distinguish the light waves from sound waves	A. Interference B. Refraction C. Polarization D. Reflection
59	Decibel is unit of	A. Intensity of light B. x-ray radiation capacity C. sound loudness D. Energy of radiation
60	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
61	Sound waves in air always	A. Longitudinal B. Transverse C. Stationary D. Electromagnetic
62	The waves moving from a sitar to a listener in air are	A. Longitudinal progressive B. Longitudinal stationary C. Transverse progressive D. Transverse stationary
63	The velocity of sound at same temperature is maximum in	A. H_2 B. N_2 C. O_2 D. NH_3
64	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. $180°$
65	Two sound waves of slightly different frequencies propagating in the same direction produce beats due to	A. Interference B. Diffraction C. Polarization D. Refraction
66	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
67	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
68	The velocity of sound is greatest in	A. Water B. Air C. Vacuum D. Metal
69	Velocity of sound in vacuum (in m/s) is	A. 330 B. 1000 C. 156 D. 0
70	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
71	Energy is not carried by	A. Transverse progressive waves B. Longitudinal vibration C. Stationary waves D. Electromagnetic
72	Which one is not produced by sound waves in air?	A. Polarization B. Diffraction C. Refraction D. Reflection
73	Which of the following is the longitudinal waves?	A. Sound waves B. Waves on plucked string C. Water waves D. Light waves
74	Laplace formula is derived from	A. Isothermal change B. Adiabatic change C. Isobaric change D. None of these
75	Which waves are used in sonography?	A. Microwaves B. Infra red waved C. Sound waves D. Ultrasonic waves
76	Mechanical waves on the surface of a liquid are	A. Transverse B. Longitudinal C. Torsional D. both transverse and longitudinal
77	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
78	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
79	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
80	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
81	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
		A. 273°C

82	The temperature at which the speed of sound becomes double as was at 27°C is	B. 0°C
		C. 927°C
		D. 1027°C

83	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

84	When sound waves travel from air to water which of these remains constant?	A. Velocity
		B. Frequency
		C. Wavelength
		D. All the above

85	A tube is tapered from 20 cm diameter to 2 cm diameter, the velocity at the first cross-section is 50 cm/s, then the velocity at the second cross-section is	A. 50 m/s
		B. 20 m/s
		C. 40 cm/s
		D. 5 cm/s

86	If v is the velocity of flow of liquid through a tube of area of cross-section A, then according to equation of continuity	A. v/A = constant
		B. A/v = constant
		C. Av = constant
		D. None

87	Two water pipes of diameters 4 cm and 8 cm are connected with a supply line. The velocity of flow of water in the pipe 4 cm diameter is	A. 1/4 times
		B. 4 times
		C. Twice
		D. 1/2 of 8 cm diameter pipe

88	The rain drop falling from the sky reach the ground with	A. Constant terminal velocity
		B. Constant gravitational acceleration
		C. Variable acceleration
		D. acceleration greater than g

89	In case of streamed lined flow of liquid, the loss of energy is	A. Maximum
		B. Minimum
		C. Infinite
		D. equal to what is in turbulent flow

90	Fluids resist force, This property is called	A. Stiffness
		B. Strength
		C. Ductility
		D. Elasticity

91	The fluid which is incompressible and non viscous is called	A. Ideal fluid
		B. Non-ideal fluid
		C. Prefect fluid
		D. All

92	The electrical forces between the molecules of a liquid are	A. Repulsive
		B. Attractive
		C. Both A and B
		D. None

93	A container has a small hole in the bottom. Air can go through this hole,but water cannot. This can be best explained by the statement that	A. water contains hydrogen atoms, air does not
		B. water molecules are smaller than molecules in the air
		C. water molecules are smaller than molecules in the air
		D. surface tension of the water prevents it from

94	If water rises 4 cm in a long, thin tube because of capillary action, then, under corresponding conditions of use, the rise (in the tube) of a liquid whose density is 2 g/cm^2 will be	A. 1 cm
		B. 2 cm
		C. 8 cm
		D. None

95	When the velocity of a liquid flowing steadily in a tube increases, its pressure?	A. Decreases
		B. Increases
		C. Remains same
		D. Zero

96	Fire fighters have jet attached to the head of their water pipes in order to	A. Increase the mass of water flowing per second
		B. Increase the velocity of water flowing out
		C. Increase the volume of water

		C. Increase the volume of water flowing per second D. Avoid wastage of water
97	Deep water almost runs still when surface water flow in rivers. What does it explains	A. Magnus effect B. Equation of continuity C. Surface energy D. Bernoulli's equation
98	Fire fighters have a jet attached to the head of their water pipes in order to head of their water pipes in order to	A. Increase the mass of water flowing per second B. Avoid wastage of water C. Increase the velocity of water flowing out D. Increase the volume of water flowing per second
99	Surface tension of water is reduced by adding	A. Detergents B. Camphor C. Plastic D. Both A and B
100	Bernoulli's equation is based upon law of conversation of	A. mass B. momentum C. Energy D. None