ECAT Pre General Science Online Test

Sr	Questions	Answers Choice
1	Resistance of a conductor depends upon	A. the quantity of current passing through it B. the voltage applied between its end C. its dimensions, physical state and nature of its material D. all of the above
2	The potential difference across each resistance in series combination is	A. same B. different C. zero D. none of these
3	Magnetic effect at a point caused due to flow a current depend upon the	A. Quantity of current B. Distance from current C. Both the quantity of current and distance from current element D. None of the all
4	The unit of resistance is	A. volt B. ampere C. ohm D. coat
5	Physicist George Simon ohm was a	A. German physical B. French physicist C. Chinese physicist D. Russian physicist
6	If we plot graph between potential difference (V) and current (I) obeying ohm's law, it will give us	A. parabola B. straight line C. hyper bola D. ellipse
7	What is the current is a 2 x 10^6ohm resistor having a potential difference of 2 x 10^3volts?	A. 10⁻¹A B. 10⁻²A C. 10⁻⁴A D. 1 mA
8	Resistor is a device which convert electric energy to	A. Heat energy B. Chemical energy C. Elastic energy D. All of the above
9	If one volt is needed to cause a current of one ampere to flow in a conductor, its resistance is	A. one ohm B. one joule C. one volt D. one ampere
10	Ohm's law states that	A. The current through a resistor is directly proportional to the applied voltage B. The voltage across a resistor is directly proportional to the current passing through it C. Resistance is the constant of proportionality between the voltage and current D. all of these
11	The electrode connected with the positive terminal of the current source is called	A. cathode B. anode C. electrolyte D. position
12	The material in the form of wire or rod or plate which leads the current into or cut of the electrolyte is known as	A. voltmeters B. resistance C. electrode D. current
13	Ohm established a relation between	A. voltage and resistance B. voltage and charge C. voltage and current D. voltage resistance and charge
		A. 1 ampere / 1 volts

14	The ohm's is defined as	B. 1 coulomb / 1 volt C. 1 volt / 1 ampere D. 1 volt / 1 coulomb
15	The relation V = IR represents	A. Ampere law B. Faraday's law C. Ohm's law D. Len's law
16	Ohm is the unit of	A. current B. capacitance C. energy D. resistance
17	The graphical representation of ohm's law is	A. hyperbola B. straight line C. ellipse D. parabola
18	In describing functions of digital systems, a closed switch will be shown as	A. 0 B. 1 C. low D. any one of these
19	Mathematical manipulation of the two quantized states can be best carried if they are represented by	A. high - low B. yes - no C. on - off D. 0 - 1
20	A digital system deals with quantities or variables which have	A. only one state B. only two discrete states C. three discrete states D. four discrete states
21	Most OP-AMP operates with	A. <u>+</u> 6 V supply B. <u>+</u> 10 V supply C. <u>+</u> 12 V supply D. <u>+</u> 24 V supply
22	The R_1= infinity and R_2= 0, then the gain of non-inverting amplifier is	A. zero B. infinity C. one D. any one of these
23	The closed loop gain of the non-inverting amplifier is given by	A. G = R₂/R₁ B. G = - R₂/R₁ C. G = 1 - R₂/R₁ D. G = 1 + T₂/R₁
24	The closed loop gain of the inverting amplifier is written as	A. G = R₂/R₁ B. G = 1 + R₂/R₁ C. G = - R₂/R₁ D. G = 1 - R₂/R₁
25	The open loop gain of OP-AMP is of the order of	A. 10² B. 10³ C. 10⁴ D. 10⁵
26	The value of output resistance of OP-AMOP is of the order of	A. few ohms B. few hundred ohms C. several kilo ohms D. several mega ohms
27	Due to the high value of the input resistance, practically, the value of the current which flows between the input terminals is	A. zero B. small C. large D. very large
28	The value of the input resistance of OP-AMP is of the order of	A. few ohms B. few hundred ohms C. several kilo ohms D. several maga ohms
29	The input resistance of the OP-AMP is the resistance between the	A. (-) input and output B. (+) input and output C. (-) and (+) inputs D. between any inputs
		A. inverting input B. non-inverting input

30	A signal is amplified at the output without any change of phase, if it is applied at the	B. non-inverting input C. at any of the input D. none of these
31	A signal appears after amplification, at the output terminal with a phase shift of 180° , if it is applied at	A. inverting input B. non-inverting input C. any one of the input terminal D. none of them
32	OP-AMP has the following input terminals	A. one B. two C. three D. four
33	The amplifier which us used to perform mathematical operations electronically is known as	A. calculator B. OP-AMP C. computer D. any one of them
34	When a transistor is used as a switch the circuit in which the current is to be switched OFF and ON, is connected between the	A. base and emitter B. collector and emitter C. base and collector D. any one of these
35	The emitter-base junction of a transistor is forward-biased and collector-base junction is reverse-biased. If the base current is increased, its	A. I_cwill decrease B. V_{CE}will increase C. I_Cwill increase D. V_{CC}will increase
36	When the emitter-base junction of a transistor is reverse biased, collector current	A. Reverses B. Increases C. Decreases D. Stops
37	The value of current gain of n-p-n transistor is of the order of	A. tens B. hundreds C. thousands D. ten thousands
38	For a n-p-n transistor, the conventional current equation can be written as	A. I_E+ I_C= I_B B. I_C- I_B= I_E C. I_C+ I_B= I_E D. I_B+ I_E= I_C
39	In a normally biased n-p-n transistor, an electron c current $I_E$flows from the	A. emitter into the base B. collector into the base C. base into collector D. none of these
40	In n-p-n transistor, emitter base junction is kept	A. reversed B. forward biased C. may be reversed or may be forward biased D. none of these
41	For normal operation of transistor, the batteries	A. V_{CC}is of much lower value than V_{BB} B. V_{CC}is of much higher value than V_{BB} C. V_{CC is equal to}V_{BB} D. none of these
42	For the normal operation of the transistor, its	A. emitter-base and collector base junctions are forward biased B. emitter-base junction is reversed biased and collector base junction is forward biased C. emitter-base junction is forward biased and collector-base junction is reverse biased D. any one of these
43	Which of the following has a great concentration of impurity	A. base B. emitter C. collector D. none of these
44	In a transistor, the central region is called	A. collector B. emitter C. base D. none of them
45	In a transistor, if the central region is n-type, then this type of transistor is known as	A. n-p-n transistor B. p-n-p transistor

45	In a transistor, if the central region is n-type, then this type of transistor is known as	C. either of these D. none of these
46	A process is a reversible process, if the entropy of the system	A. increases B. decreases C. remains constant D. none of them
47	The disorder in the system increases due to the	A. removal of heat B. addition of heat C. removal or addition of heat D. none of them
48	An irreversible heat flow from a hot to cold substances of a system, causes the disorder to	A. decrease B. remains the same C. increase D. any one of them
49	If a system undergoes a natural process it will go in the direction that causes the entropy of the system plus the environment to increase, this is another statement of	A. second law thermodynamics B. first law of thermodynamics C. third law of thermodynamics D. none of them
50	In all natural processes where heat flows from one system to another, there is always a net	A. decrease in entropy B. increase in entropy C. decrease or increase in entropy D. none of them
51	When heat is removed from the system	A. negative B. positive C. zero D. any one of them
52	When heat is added into the system then change in entropy is	A. negative B. positive C. zero D. any one of them
53	Which quantity is important in stating the entropy of the system	A. initial entropy B. final entropy C. change in entropy D. none of them
54	Which of the following is a state variable	A. entropy B. pressure C. volume D. all of them
55	The concept of entropy was introduced into the study of thermodynamics in	A. 1856 B. 1865 C. 1656 D. 1685
56	The efficiency of diesel engine is	A. 25% B. 25 - 30% C. 35% D. 35 - 40%
57	No spark plug is needed in	A. petrol engine B. diesel engine C. both of them D. none of them
58	The efficiency of petrol engine is usually not more than 25% to 30% because of	A. friction B. heat losses C. both of them D. none of them
59	On the exaust stroke, the outlet values opens. The residual gases are expelled and piston moves	A. outwards B. inwards C. in either way D. none of these
60	On the power stroke, a spark fires the mixtures causing a rapid increase in pressure and temperature and the burning mixture expands	A. adiabatically B. isothermally C. isochorically D. isobarically
61	On the compression stroke of the petrol engine, the inlet value is closed and the mixture is compressed	A. adiabatically B. isothermally C. isochorcally D. isobarically
62	A typical four stroke petrol engine undergoes how many successive processes in each cycle	A. one B. two C. three D. four
		A. very high temperature

63	Since the absolute scale is independent of the property of the working substance, hence, can be applied at	B. very low temperature C. any one of them D. none of them
64	The state in which ice, water and vapour coexists in equilibrium is called	A. zero degree celsius B. zero degree fahrenheit C. absolute zero D. 373 K
65	The unit of thermodynamical scale is	A. centigrade B. fahrenheit C. kelvin D. none of them
66	The absolute temperature of the tripple point of water is	A. 100°C B. 4°C C. 373 K D. 273.16 K
67	The basis to define a temperature scale that is independent of material properties is provided by	A. carbon cycle B. nitrogen cycle C. Carnot cycle D. irreversible cycle
68	Generally a temperature scale is established by using certain physical properties of a material which varies	A. nonlinearly with temperature B. linearly with temperature C. either of them D. none of them
69	Generally a temperature scale is established by	A. one fixed point B. two fixed point C. three fixed point D. four fixed point
70	The efficiency of carnot engine cannot be 100% or one unless cold reservoir is at	A. 100 K B. 273 K C. 0 K D. -273 K
71	Efficiency of carnot engine is independent of the	A. temperature of sink B. temperature of source C. nature of the working substances D. none of them
72	The highest efficiency of a heat engine whose low temperature is 17°C and the high temperature is 200°C is	A. 70% B. 100% C. 35% D. 38%
73	When the temperature of source and sink of a heat engine become equal entropy change will be	A. Zero B. Max C. Min D. -ve
74	During the whole carnot cycle	A. Thermal equilibrium is maintained B. mechanical equilibrium is maintained C. both the thermal and mechanical equilibriumis maintained D. both the thermal and mechanical equilibrium is not maintained
75	Which of the following can become a good temporarily magnet	A. iron B. steel C. both of them D. none of them
76	Which of the following can become a good permanent magnet	A. iron B. steel C. both of them D. none of them
77	In a soft iron, domains are	A. easily oriented along external field and do not return to original random positions B. easily oriented along external field and readily returns to originally random position C. do no oriented along external field and also do not returns to originally random position D. none of them
78	Within each domain, the magnetic field of all the spinning electrons are	A. parallel B. antiparallel

78	Within each domain, the magnetic field of all the spinning electrons are	C. perpendicular D. all of them
79	The size of the domain is such that they can contain	A. 10²to 10⁴atoms B. 10⁴ to 10⁸atoms C. 10⁸to 10¹²atoms D. 10¹²to 10¹⁶atoms
80	The domains are of macroscopic size of the order of	A. centimeters B. meters C. millimeters D. nanomneters
81	Recent studies of ferromagnetism have shown that there exists in ferromagnetic substances small regions called	A. tiny regions B. domains C. vectors D. none of them
82	The substance in which atoms cooperate with each other in such a way so as to exhibit a strong magnetic effect, are called	A. diamagnetic substances B. ferromagnetic substances C. paramagnetic substances D. all of them
83	The substance in which atoms are so oriented that the field produced by spin and orbital motion of the electrons might add up to zero,are called	A. diamagnetic substances B. ferromagnetic substances C. paramagnetic substances D. all of them
84	The substances in which, atom are so oriented that their fields support each other and the atoms behave like tiny magnets, are called	A. diamagnetic substances B. ferromagnetic substances C. paramagnetic substances D. all of them
85	The charged nucleus of an atom itself spins its magnetic field	A. equal to the field produced by orbital electrons B. greater than the field produced by orbital electrons C. much weaker than the field produced by orbital electrons D. none of these
86	An atom in which there is a resultant magnetic field, behaves like a tiny magnet and is called as	A. magnetic B. magnetic dipole C. magnetic monopole D. none of them
87	The magnetism produced by electrons within an atom can arise from	A. electrons orbiting the nucleus B. electrons posses a spin C. both motions D. none of these motions
88	Recently a complex crystalline structure known as Yetrium Barium Copper Oxide have been reported to become superconductor at	A. 125 K B. 25 K C. 263 K D. 163 K
89	Any superconductor with critical temperature above 77 K, is referred as	A. low temperature superconductor B. high temperature superconductor C. very low temperature superconductor D. none of them
90	The critical temperature of tin is	A. 1.18 K B. 4.2 K C. 3.72 K D. 7.2 K
91	The critical temperature of aluminium is	A. 1.18 K B. 4.2 K C. 3.72 K D. 7.2 K
92	The critical temperature of mercury is	A. 1.18 K B. 4.2 K C. 3.72 K D. 7.2 K
93	The first super conductor was discovered in	A. 1811 B. 1890 C. 1901 D. 1911
94	There are some whose resistivity becomes zero below a certain temperature, called	A. absolute zero B. 0<span style="color: rgb(84, 84, 84); font-family: arial, sans-serif; font-

94	There are some whose resistivity becomes zero below a certain temperature, called	size: small;">°C C. critical temperature D. lower fixed point
95	In a semi-conductor material, the total current is	A. only the +ve current B. only the electronic current C. sum of +ve and electronic current D. all of them
96	In a semi-conductor material, current flows due to	A. positive charge B. negative charge C. both of them D. none of them
97	Whenever a covalent bond is broken in an intrinsic semi-conductor	A. hole is created B. an electron is created C. an electron-hole pair is generated D. all of them
98	When a silicon crystal is doped with a pentavalent element, then the atom of the pentavalent element is known as	A. acceptor B. donor C. either of them D. none of them
99	When a silicon crystal is doped with a pentavalent element, such an extrinsic semi-conductor is called	A. p-type semi-conductor B. n-type semi-conductor C. either of them D. none of them
100	Arsenic, antimony and phosphorus are the elements from	A. third group B. fourth group C. fifth group D. none of them