ECAT Pre General Science Online Test

Sr	Questions	Answers Choice
1	The electric intensity at infinite distance from the point charge will be	A. Infinite B. Positive C. Zero D. Negative
2	The electric intensity outside the two oppositely charged parallel metal plates is	A. Maximum B. Minimum C. Zero D. Infinite
3	The energy stored in a charge capacitor	A. 1/2CV² B. 1/2C²V C. 1/2C/V² D. None of these
4	In case of a parallel plate capacitor if the plate separation is doubled and plate area is halved, the capacitance becomes	A. Four-fold B. One-half C. One-fourth D. Zero
5	The capacitance of a parallel plate capacitor depends upon	A. Area of the plates B. Separation between the plates C. Medium between the plates D. All of the above
6	Surface density of charge is defined as	A. Charge per unit volume B. Charge per unit length C. Charge per unit area D. Charge per unit mass
7	The SI unit of capacitance is	A. Farad B. Henry C. Ohm D. Volt
8	Electron volt is the unit of.	A. Potential difference B. Energy C. Resistance D. Capacitance
9	The relation between the charge Q of a parallel plate capacitor and the P.D between its plates is	A. Q=V/C B. Q=C/V C. Q=1/2CV D. Q=CV
10	Electron volt is the unit of	A. Potential difference B. Energy C. Resistance D. Capacitance
11	If an electron of charge 'e' is accelerated through a potential difference V., it will acquire energy	A. Ve B. V/e C. e/V D. 2Ve
12	One joule is equal to	A. 1.6 x 10¹⁹eV B. 6.25 x 10¹⁸eV C. 1.6 x 18¹⁸eV D. 6.25 x 10¹⁹eV
13	One electron volt is equal to	A. 1.6 x 1019eV B. 6.25 x 1018 eV C. 1.6 x 1018 eV D. 6.25 x 1019eV
14	When an electron is accelerated through a P.D. of an one volt, it will acquire energy equal to	A. One joule B. One erg C. One electron volt D. None of these
15	The earth's potential is taken as	A. Negative B. Positive C. Zero D. Infinite

16	The electric lines of force are	A. Imaginary B. Physically existing everywhere C. Physically existing near the charge D. All of the above
17	Which one of the following is the unit of electric field intensity	A. JC⁻¹ B. Vm⁻¹ C. Cm⁻¹ D. CJ⁻¹
18	A closed surface contains two equal and opposite charges. The net electric flux from the surface will be	A. Negative B. Positive C. Infinite D. Zero
19	The electric flux from a closed surface	A. Is independent of the shape of the surface B. Depends on the charge enclosed by the surface C. Both a and b D. None of the above
20	The electric flux is linked with a surface will be maximum when	A. The surface is held parallel to the electric field B. The surface is held perpendicular to the electric field C. The surface makes an angle of 45° with the electric field D. All of the above
21	The SI unit of electric flux is	A. Weber B. Nm²C⁻¹ C. NmC⁻¹ D. Nm⁻²C
22	Electric flux is defined by the relation	A. E.A. B. E x A C. E/A D. none of these
23	The dot product of electric field intensity E and vector area A is called	A. Electric potential B. Electric flux C. Electric field D. Magnetic field
24	The SI unit of electric field intensity is	A. CN⁻¹ B. NC⁻¹or Vm⁻¹ C. JC⁻¹ D. AV⁻¹
25	An electric charge at rest is	A. Only an electric field B. Only a magnetic field C. Both electric and magnetic fields D. None of the above
26	A charge of 0.1 c accelerated through a potential difference of 1000V acquires kinetic energy	A. 200 J B. 100 J C. 1000 J D. 400 J
27	One coulomb of charge is created by	A. 10 electrons B. 1.6 x 10⁻¹⁹electrons C. 6.25 x 10¹⁸electrons D. 6.25 x 10²¹electrons
28	The electric field will be uniform	A. Near a positive point charge B. Near a negative point charge C. Between two oppositely charged parallel metal plates D. None of above
29	Which one of the following has larger value of relative permitivity $E_r$at room temperature?	A. Vaccum B. Air C. Glass D. Water
30	If electric and gravitational force on an electron in a uniform electric field will be	A. E=mg/q B. E=q/mg C. E=,g/q D. E=qg/m
31	Coulomb force, when any material medium is placed between two charges	A. Increases B. Decreases C. Remain unchanged D. None of these
32	The minimum charge on any object can not be less than	A. 1.6 x 10⁻¹⁹C B. 3.2 x 10⁻¹⁹C C. 1.0 C

		D. 4.8 x 10⁻¹⁹C
33	The ratio of the gravitational force F_g to the electrostatic force F_e between two electrons at the same distance apart is approximately	A. 9.8 B. 24 x 10¹⁹ C. 24 x 10⁴² D. 24 x 10⁻⁴⁴
34	The statement "the electric force of repulsion or attraction between two point charges is directly proportional to the product of the charges and inversely proportional to square of the distance between them" refer to	A. Coulomb's law B. Gauss's law C. Biot-Sarwat law D. Ampere's law
35	The electric field intensity at a point due to a point charge	A. Falls off inversely as the distance B. Falls off inversely as the square of distance C. Remains unchanged with distance D. Increase directly as square of distance
36	Coulomb's force between two point charges depends upon	A. Magnitude of charges B. Distance between them C. Medium in which they are located D. All of the above
37	The concept of field theory was put forward by	A. Franklin B. Kepler C. Oersted D. Michael Faraday
38	The value of electrical constant of proportionality k is	A. 9 x 10⁹Nm²C⁻² B. 9 x 10⁻⁹Nm²C⁻² C. 9 x 10¹⁰Nm²C² D. 9.85 x 10⁻¹²N⁻¹C⁻²
39	The SI unit of permitivity is	A. Nm²C² B. N⁻¹m⁻²C² C. NmC² D. Nm²C⁻¹
40	If the two charges in Coulomb's law have double distance between them, then electric force	A. Becomes two-fold B. Becomes four-fold C. Remains the same D. None of these
41	Which of the following diode is used for the detection of light	A. photo diode B. light emitting diode C. photo voltaic cell D. all of them
42	In which of the following diodes when an electron combines with a hole during the forward biasing, photon of visible light is emitted.	A. photo diode B. light emitting diode C. photo voltaic cell D. all of them
43	In which of the following components, pn-junction is used	A. light emitting diode B. photo diode C. photo voltaic cell D. all of these
44	The circuit which is used to smooth the output voltage of the full-wave rectification is known as	A. transformer B. rectifier C. filter D. none of these
45	The bridge circuit of full wave rectification uses	A. one diode B. two diode C. three diode D. four diode
46	In half wave rectification	A. both halves of the input voltage is used B. only one half of the input voltage is used C. either of these D. none of these
47	During the negative half-cycle of the half-wave rectification, the diode	A. does not conduct B. conducts C. either of these D. none of these
48	During the positive half-cycle in the half-wave rectification,the diode	A. does not conduct B. conducts C. either of these D. neither of these
		A. a smooth curve

49	The output voltage of half wave rectification is in the form of	B. a smooth wave C. pulses D. all of the above
50	Conversion of alternating current into direct current is called	A. amplification B. rectification C. conduction D. polarization
51	A diode characteristic curve is a plot between	A. current and time B. voltage and time C. voltage and current D. forward voltage and reversed voltage
52	When the pn-junction is connected reversed biased, its resistance is of the order of	A. few ohms B. few kilo-ohms C. few mega-ohms D. few mili-ohms
53	When the pn-junction is in reversed biased, current flows through the junction due to the	A. majority carriers B. minority carriers C. either of them D. none of them
54	When the pn-junction is forward biased. the current flows through it is of the order of	A. mili-amperes B. amperes C. nano-amperes D. micro-amperes
55	When the p-n junction is forward biased its resistance is of the order of	A. few mega ohms B. few kilo ohms C. few ohms D. few milli ohms
56	The value of the potential difference across the depletion region for the case of germanium is	A. 0.3 V B. 0.5 V C. 0.7 V D. 0.9 V
57	A p-n junction is formed when a crystal of silicon is growth in such a way that its one half is doped with trivalent impurity and the other half with a impurity from	A. 2nd group B. fourth group C. fifth group D. sixth group
58	Average value of A.C voltage during one cycle is	A. 1 B. Zero C. Maximum D. Variable
59	A changing magnetic flux creates around itself	A. An electromotive force B. An electric field (changing electric flux) C. Magnetic field D. None of the above
60	When electrons in the transmitting antenna vibrate 94000 time per second, they produce radiowaves having frequency	A. 9.4 kHz B. 940 kHz C. 94 kHz D. None of these
61	In free space, the speed of electromagnetic waves is	A. 3 x 10⁸ms⁻¹ B. 3 x 10⁶ms⁻¹ C. 4 x 10⁷ms⁻¹ D. 3 x 10⁹ms⁻¹
62	Transmitting antenna emits	A. Magnetic waves B. Electric waves C. Electromagnetic waves D. Sound waves
63	Electromagnetic waves transmit energy equal to	A. 1/2 mv² B. m_oc² C. hf/c D. hf
64	Which one of the following Electro-magnetic wave have the highest frequency and shortest wave-length	A. X-rays B. Ultraviolet rays C. y-rays D. Cosmic rays
65	Chock consumes externally small	A. Charge B. Current C. Power D. Potential
66	Which one of the following waves belongs to electromagnetic spectrum	A. Radio and TV waves B. Radar waves C. Micro waves D. All of them

67	In frequency modulation (FM), the carrier waves amplitude	A. Remains constant B. Increase C. Decreases D. None of these
68	If the value of C in a series RLC circuit is increased, the resonant frequency	A. Is not affected B. Increase C. Remains the same D. Decreases
69	The phase angle of a series RLC circuit at resonance is	A. 180° B. 90° C. 0° D. None of the these
70	The total reactance of a series RLC circuit at resonance is	A. zero B. Equal to the resistance C. Infinity D. Capacitive
71	SI unit of impedance is	A. hertz B. henry C. ampere D. ohms
72	In series RC circuit when $R=X_C$, then the phase angle is	A. 0° B. 90° C. 70° D. 45°
73	An A.C. voltage is applied across the inductor. When the frequency of the voltage is increased, the current	A. Decreases B. Increases C. Does not change D. Momentarily goes to zero
74	At resonance frequency the impedance of parallel resonance circuit is	A. Maximum B. Minimum C. Zero D. None of the above
75	The impedance of RLC series resonance circuit at resonant frequency is	A. Greater than R B. Equal to R C. Less than R D. None of these
76	An A.C. voltmeter read 250 volts. The frequency of alternating is 50 Hz, the peak value of voltage is	A. 3525.0 volts B. 35.35 volts C. 353.5 volts D. 3.535 volts
77	To design a resonant circuit of frequency 100 KHz with an inductor of inductance 5 mH, we need a capacitor of capacitance	A. 5.07 pF B. 50 pF C. 0.507 pF D. 507 pF
78	At resonance, the impedance of RLC series circuit is	A. Maximum B. Zero C. Minimum D. Determinate
79	When either L or C is increased, the resonant frequency of the RLC series circuit	A. Increases B. Decreases C. Remains the same D. Becomes zero
80	At resonance, the phase angle for RLC series resonance circuit equals	A. 0° B. 90° C. 180° D. 270°
81	The power factor of resonant series circuit is	A. 1 B. 0 C. -1 D. 0.5
82	In RLC series circuit, resonance occurs when	A. X_{L > Xc} B. X_{L < Xc} C. X_{L = Xc} D. None of these

		D. None of these
83	A resonance curve for RLC series circuit is a plot of frequency versus	A. Voltage B. Current C. Impedance D. Reactance
84	The r.m.s. value of alternating current is equal to its maximum value at angle of	A. 60° B. 45° C. 30° D. 90°
85	The device which allows only the flow of an A.C. through a circuit is	A. Capacitor B. Inductor C. D.C. motor D. Battery
86	Alternating current can induce voltage because it has a	A. High peak value B. Varying magnetic field C. Stronger field than direct curren D. Constant magnetic field
87	An A.C varies as a function of	A. Current B. Voltage C. Time D. Charge
88	At higher frequency of the alternating current, the capacitive reactance X_C	A. Increases B. Decreases C. Remains the same D. Increases only when the voltage increases
89	Which one of the following is correct?	A. V_o= 1.414 V_{rms} B. I_{ams}= 1.414 I_o C. VO = 10.70 Vrms D. Both a and b
90	In an A.C circuit with resistor only, the current and voltage have a phase angle of	A. 90° B. 0° C. 180° D. none of these
91	The basic circuit elements of A.C circuit are	A. Resistor B. Inductor C. Capacitor D. All the three
92	During each cycle, alternating voltage reaches a peak value	A. One time B. Two times C. Four times D. A number of times depending on the frequency
93	The average of A.C. current and voltage over a complete cycle is	A. Maximum B. zero C. Neither zero nor maximum D. None of these
94	Carnot heat engine only used	A. isothermal processes B. adiabatic processes C. both of them D. none of them
95	Sadi carnot described an ideal heat engine in	A. 1820 B. 1840 C. 1860 D. 1880
96	We cannot utilize the heat contents of oceans and atmosphere because	A. there is no reservoir at the same temperature B. there is no reservoir at the temperature lower than any one of two C. there is no reservoir at the temperature higher than any one of two D. none of them
97	For the working of a heat engine, there must be	A. a source of heat at high temperature B. a sink at low temperature C. both of them D. none of them
98	According to the second law, which is must to produce work	A. a source contains a large amount of heat energy B. two sources at the same temperature C. two sources at the different temperatures

		C. two sources at the different temperatures D. a source contains a small amount of energy
99	It is impossible to devise a processes which may convert heat, extracted from a single reservoir, entirely into work without leaving any change in the working system. This is the statement of	A. Clausius statement of second law B. Kelvin'sstatement of second law C. Clausius statement of first law D. Kelvin's statement of first law
100	The percentage of available heat energy converted into work by a diesel engine is roughly	A. 35 %` B. 40 % C. 35 - 40 % D. 25 %