Physics ECAT Pre Engineering Online Test

Sr	Questions	Answers Choice
1	If a charged spherical conductor of radius 10 cm has potential V at a point distance 5 cm from its centre, then the potential at a point distance 15 cm from the centre will be	A. 1/3 V B. 2/3 V C. 3/2 V D. 3V
2	Equal charges are given to two spheres of different radii. The potential will	A. Be more on the smaller sphere B. Be more on the bigger sphere C. Be equal on both the sphere D. Depend on the nature of the material of the sphere
3	An electron of charge e coulomb passes through a potential difference of V volts its energy in joules will be	A. V/e B. eV C. e/V D. V
4	The electric field due to an infinite long thin wire at a distance R varies as	A. 1/R B. 1/R² C. R D. R²
5	A wire is bent into a ring of radius R is given a charge q. The magnitude of the electrical field at the centre of the ring is	A. Two B. 1/2 C. Zero D. 3/2
6	The excess (equal in number) of electrons that must be placed on each of two small spheres spaced 3 cm apart, with force of repulsion between the spheres to be 10^{-19}N, is	A. 25 B. 225 C. 625 D. 1250
7	Two point charges A and B separated by a distance R attract each other with a force of 12 x 10^{-3}N. The force between A and B when the charges on them are doubled and distance is halved	A. 1.92 N B. 19.2 N C. 12 N D. 0.192 N
8	A charge Q is divided into two parts q and Q - q and separated by a distance R. The force of repulsion between them will be maximum when	A. q = Q/4 B. q = Q/2 C. q = ! D. None of these
9	The force of repulsion between two point charges is F, when these are at a distance 0.1 m apart. Now the point charges are replaced by sphere of radii 5 cm each having the same charge as that of the respective point charges. The distance between their centre is again kept 0.1 m ; then the force of repulsion will	A. Increase B. Decrease C. Remain F D. Become 10F/9
10	A point charge Q is placed at the mid-point of a line joining two charges. 4q and q. if the net force on charge q is zero. then Q must be equal to	A. -q B. +q C. -2q D. +4q
11	A point charge A of charge +4μC and another B of charge -1μC are placed in air at a distance 1 m apart. Then the distance of the point on the line joining the charge B, where the resultant electric field is zero, is (in m)	A. 2 B. 1 C. 0.5 D. 1.5
12	A hollow insulated conduction sphere is given a positive charge of 10μC. What will be the electric field at the centre of the sphere if its radius is 2 meters?	A. Zero B. 5μC m⁻² C. 20μC m⁻² D. 8μC m⁻²

13	An electric dipole is at the centre of a hollow sphere of radius r. The total normal electric flux through the sphere is (here Q is the charge and d is the distance between the two charges of the dipole)	A. Q/4πr² B. 2Q/4πr² C. Q.d D. Zero
14	Consider a spherical shell of metal at he centre of which a positive point charge is kept	A. The electric filed is zero outside the shell B. The electric field is zero everywhere C. The electric field is zero in the region inside the shell D. The electric field is non-zero in both regions outside and inside the shell
15	The unit of intensity of electric field is	A. newton/coluomb B. jule/coluomb C. volt x metre D. newton/metre
16	In a Milikian's oil drop experiment the charge on an oil drop is calculated to be 6.35 x 10^{-19}C. The number of excess electrons on the drop is	A. 3.9 B. 4 C. 4.2 D. 6
17	Two point charge +3**μC and +8μC repel each other with a force of 40 N. If a charge of -5μC is added to each of them, then the force between then will become**	A. -10 N B. +10 N C. +20 N D. -20 N
18	The force between two chares 0.06 m apart is 5 N. If each charge is moved towards the other by 0.01 m, then the force between them will become	A. 7.20 N B. 11.25 N C. 22.50 N D. 45.00
19	A gas is compressed adiabatically till its temperature is double. The ratio of its final volume to initial volume will be	A. 1/2 B. More than 1/2 C. Less than 1/2 D. Between 1 and 2
20	First law of thermodynamics is consequence of conservation of	A. Work B. Energy C. Heat D. All of these
21	At what temperature the adiabatic change is equivalent to the isothermal change?	A. Zero degree Celsius B. Zero Kelvin C. Critical temperature D. Above critical temperature
22	First law of thermodynamic is special case of	A. Law of conservation of energy B. Charle's law C. Law of conservation of mass D. Boyle's law
23	Two samples A and B of a gas initially of the same temperature and pressure are compressed from a volume V to a volume V/2 such that A is compressed isothermally and B adiabatically. The final pressure	A. A greater than than of B B. A is equal to that of B C. A is less than that of B D. A is twice the pressure of B
24	Rice takes longest to cook	A. In a submarine 100 m below the surface of the sea B. At sea level C. At Murree D. At Mount Everest
25	Melting point of ice	A. Increases with increasing pressure B. Decreases with increasing pressure C. Is independent of pressure D. Is proportional to pressure
		A. -20°C B. 6.67<span style="color: rgb(84, 84, 84); font-family: arial, sans-serif; font-

26	An amount of water of mass 20 g at 0°C is mixed with 40 g of water at 10°C. Final temperature of mixture is	84); font-family: arial, sans-serif; font-size: small;">°C C. 5°C D. 0°C
27	Specific heat at constant pressure is greater than the specific heat at constant volume because	A. Heat is used up to increase temperature at constant pressure B. Heat is used by gas for expansions purposes at constant pressure C. Heat is use dup to increase internal energy D. The above statement is invalid
28	If water in a closed bottle is taken up to the moon and opened, the water gets	A. Freeze B. Boiled C. Dissociated into O₂and H₂ D. Evaporated
29	What temperature is the same on Celsius scale as well as on Fahrenheit scale?	A. 32°C B. -32°C C. -40°C D. -212°C
30	Amount of heat required to raise the temperature of a body through 1 K is called its	A. Specific heat B. Water equivalent C. Thermal capacity D. Entropy