**Electricity and Magnetism**

1.According to Coulomb’s law ,the electrostatic force between two charges is:

(a)inversely proportional to the product of the charges

(b)inversely proportional to the square of the distance between the charges

(c)directly proportional to the cube of the distance between charges

(d)none of these

2.The electric field due to the dipole at a distance r from its centre is proportional to:

(a)$\frac{1}{r^{3}}$ (b)$r^{3}$

(c)$r^{2}$ (d)$\frac{1}{r^{2}}$

3.1 vote equals:

(a)1J (b)1J/C (c)1C/J (d)none of these

4.In coulomb’s law, the constant of proportional K=$\frac{1}{4π\in \_{0}}$ has units:

(a)N (b)N-$m^{2}$

(c)$\frac{Nm^{2}}{c^{2}}$ (d)$\frac{Nc^{2}}{m^{2}}$

5.When an ebonite rod is rubbed with fur, the charge acquired by the fur is:

(a)negative (b)positive

(c)neutral (d)none of these

6.A positive charged body has :

(a)excess of electron

(b)deficiency of electron

(c)no change in number of electron

(d)none of these

7.when a glass rod is rubbed with silk, both the glass rod and silk:

(a)Acquire equal and similar charges

(b)Acquire equal and opposite charge

(c)Acquire unequal and opposite charge

(d)acquire unequal and similar charge

8.A suitable unit for expressing electric field strength is:

(a)$\frac{V}{C}$ (b)A-m (c)C/$m^{2}$ (d)N/c

9.How many electrons will have a charge of one coulomb:

(a)6.2$×10^{18}$ (b)6.2$×10^{19}$ (c)5.2$×10^{18}$

(d)5.2$×10^{19}$

10.Two charges of 1 C and 5 C are placed at some distance in air .The ratio of the forces acting on them is:

(a)1:25 (b)1:5 (c)1:1 (d)5:1

11.An electron volt is equal to:

(a)0.62$×10^{13} J$ (b)1.6$×10^{-13}J$

(c)0.62$×10^{19}J $ (d)1.6$×10^{-19}$

12.Two charges are placed at a distance apart. If a glass slab is placed between them, force between them will:

(a)increase (b)infinite (c)remain zero (d)be zero

13.The work done in moving a positive charge on an equipotential surface is:

(a)finite and positive (b)infinite

(c)finite and negative (d)zero

14.A soap bubble is given negative charge then its radius:

(a)decrease (b)increase

(c)remains unchanged (d)none of these

15.A hollow sphere of copper is positively charged. The electric field inside the sphere is:

(a)the same as the field at the surface

(b)greater than the field at the surface

(c)less than the field at the surface but not zero

(d)zero

16.The potential inside a hollow spherical conductor:

(a) is constant

(b)varies directly as the field at the surface

(c)less than the field at the surface but not zero

(d)zero

17.The electric field intensity on the surface of the charged conductor is:

(a)zero

(b)directed normally to the surface

(c)directed tangentially to the surface

(d)directed along 45° to the surface

18.The capacitance unit of convenient size is:

(a)farad (b)microfarad (c)Kilo farad

(d)mega farad

19.No current flows between two charged bodies when connected:

(a)If they have same capacity

(b)if they have the same quantity of charge

(c)if they have same potential

(d)none of these

20.As the electric charge on the surface of a hollows metal sphere increase the electric field intensity inside the sphere:

(a)decrease (b)increase

(c)remains (d)none of these

21.The electric field due to point charge at a distance R from it is E. If the same charge is placed on a metallic sphere of radius R, the electric field on the surface of the sphere will be:

(a)zero (b)increase (c)remains the same

(d)none of these

22.A hollow metal sphere of radius 5cm is charged so that the potential on its surface is 10 V. The potential at the centre of sphere is:

(a)zero (b)10 V (c)more than (d)none of these

23.Two concentric metallic spherical shells are given positive charges then:

(a)the quarter sphere is always at the higher potential

(b)the inner sphere is always at the higher potential

(c)both the spheres are the same potential

(d)none of these

24.A conductor carries a certain charge. When it is connected to another uncharged conductor of finite capacity ,them the energy of the combined system is;

(a)more than that of the first conductor

(b)less than that of first conductor

(c)equal to that of first conductor

(d)uncertain

25.The electric field between the two sphere of a charged spherical condenser:

(a)is zero (b)is constant

(c)increase with distance from centre

(d)decrease with distance from centre

26.Capacity of a parallel plate condenser can be increased by:

(a)increasing the distance between the plate

(b)increasing the thickness of the plate

(c)decreasing the thickness of the plate

(d)decreasing the distance between the plate

27.The capacitance of parallel plate condenser does not depend on:

(a)area of the plate

(b)metal of the plate

(c)medium between the plate

(d)distance between the plate

28.Electric field intensity at appoint a hollow charged spherical conductor:

(a)is zero (b)is constant

(c)increase with the distance from the centre of the sphere

(d)none of these

29.For an electric dipole, the field at a point on the equatorial line and the dipole moment are:

(a)in the same direction

(b)in opposite direction

(c)perpendicular to each other

(d)not related

30.Electron volt (eV) is a unit of:

(a)energy (b)potential (c)current (d)charge