BCM SCHOOL, BASANT AVENUE, DUGRI

CLASS – XII

SUBJECT – PHYSICS
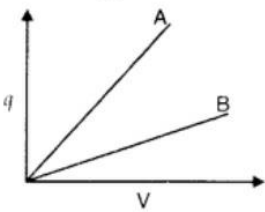
ASSIGNMENT

MULTIPLE CHOICE QUESTIONS

Q. NO.	QUESTION
1	Two copper spheres of the same radius, one solid and the other hollow, are charged to the same potential. Which will have more charge? (a) Solid sphere (b) Hollow sphere (c) Both will have an equal charge (d) None of these
2	The capacitance of a capacitor will decrease if we introduce a slab of: (a) copper (b) aluminium (c) zinc (d) None of these
3	Two capacitors of capacitance 6 μF and 4 μF are put in series across a 120 V battery. What is the potential difference across the 4 μF capacitor ? (a) 72 V (b) 60 V (c) 48 V (d) zero
4	In which of the following forms is the energy stored in a capacitor? (a) Charge (b) Potential (c) Capacitance (d) Electric field
5	Two conducting spheres of radii r_1 and r_2 are equally charged. The ratio of their potential is (a) $(r_1/r_2)^2$ (b) $(r_1 r_2)^2$ (c) (r_1/r_2) (d) (r_2/r_1)
6	Twenty-seven drops of mercury are charged simultaneously to the same potential of 10 volts. What will be potential if all the charged drops are made to combine to form one large drop ? (a) 180 V (b) 90 V (c) 120 V (d) 45 V
7	The amount of work required to increase the distance between -6μC and 4μC from 6 cm to 18 cm will be : (a) 1.8 J (b) 2.4 J (c) 1.8 μJ (d) 2.4 μJ
8	An electron initially at rest is accelerated through a potential difference of one volt. The energy gained by electron is: (a) 1 J (b) 1.6×10^{-19} J (c) 10^{-19} J (d) None of these
9	Choose the SI unit of electric potential energy :

	(a) Joule (b) Coulomb (c) Newton per coulomb (d) Erg
10	The capacitance of earth, viewed as a spherical conductor of radius 6408 km is: (a) 1420 μF (b) 712 μF (c) 680 μF (d) 540 μF
11	A capacitor is connected across a battery and the plate separation of capacitor is increased without removing the battery, then: (a) capacitance will increase (b) charge stored will increase (c) energy stored will decrease (d) potential difference will increase
12	Two capacitors of 3 μF and 6 μF are connected in series with a battery of P.d. 12 V. The P.d. across 3μF and 6μF capacitors respectively will be : (a) 8 V, 4 V (b) 6 V, 6 V (c) 4 V, 8 V (d) 9 V, 3 V
13	An electric charge of 425 f μC is removed from a fully charged capacitor of capacitance 8.5μF. Its potential will be lowered by: (a) 75 V (b) 100 V (c) 85 V (d) 50 V
14	Minimum number of capacitor of 2μF each required to obtain a capacitance of 5μF will be: (a) 4 (b) 3 (c) 5 (d) 6
15	The electric potential of earth is taken as: (a) zero (b) infinity (c) unity (d) None of these
16	What is the SI unit of electric potential? (a) J/C (b) J-C (c) v-m (d) J/c-m
17	A charge Q is placed at the origin. The electric potential due to this charge at a given point in space is V. The work done by an external force in bringing another charge q from infinity up to the point is (a) v/q (b) vq (c) v+q (d) v
18	If 100 J of work has to be done in moving an electric charge of 4 C from a place, where potential is -10 volt to another place where potential is V volt,find the value of V.

	(a) 5 V (b) 10 V (c) 25 V (d) 15 V
19	The electric potential due to point charge 3 nC at distance of 9 cm is (a) 270 v (b) 3 v (c) 300 v (d) 30 v
20	In a region of constant potential, (a) the electric field is uniform (b) the electric field is zero (c) there can be no charge inside the region (d) the electric field shall necessarily change, if a charge is placed outside the region
21	Three capacitors 3 µF, 6 µF and 6 µF are connected in series to a source of 120 volt. The potential difference across the 3 µF capacitor will be (a) 40 volt (b) 30 volt (c) 40 volt (d) 60 volt
22	Equipotential surfaces at a great distance from a collection of charges whose total sum is not zero are approximately (a) spheres (b) planes (c) paraboloids (d)ellipsoids
23	The electrostatic potential energy between proton and electron separated by a distance of 1 Å is (a) 13.6Ev (b) 27.2eV (c) -14.4eV (d) 1.44eV
24	The electric potential of earth is taken to be zero, because earth is a good (a) insulator (b) conductor (c) semiconductor (d) dielectric
25	An air capacitor is charged with an amount of charge q and dipped into an oil tank. If the oil is pumped out, the electric field between the plates of capacitor will (a) increase (b) decrease (c) remain the same (d) becomes zero
26	A parallel plate air capacitor has a capacitance $18\mu F$. If the distance between the plates is tripled and a dielectric medium is introduced, the capacitance becomes $72\mu F$. The dielectric constant of the medium is (a) 4 (b) 9 (c) 12 (d) 2
27	A parallel plate capacitor is made by stacking n equally spaced plates connected alternately. If the capacitance between any two plates is C, then the resultant capacitance is (a) C (b) nC (c) (n-1)C

	(d) (n+1)C
28	The potential energy of a charged parallel plate capacitor is U_0. If a slab of dielectric constant K is inserted between the plates, then new potential energy will be (a) U_0/K (b) U_0K^2 (c) U_0/K^2 (d) U_0^2
29	If the charge on each plate of a capacitor of 60µF is 3×10^{-8}C, then energy stored in the capacitor will be (a) 2.5×10^{-15}J (b) 1.5×10^{-14}J (c) 3.5×10^{-13}J (d) 7.5×10^{-12}J
30	A dielectric induces……. in an external electric field which decreases the net electric field. (a) current (b) dipole moment (c) magnetic field (d) polarisation
31	Four point charges –Q,-q,2q,2Q are placed at different corners of a square . The relation betwwn Q and q for which the potential at the center of the square is zero 1.Q=q 2.Q=1/q 3.Q=-q 4. Q=-1/q
32	Electric potential at a distance r from the point charge is proportional to 1.r^2 2.r^{-1} 3.r^0 4.r^{+1}
33	The electric potential V at any point (x,y,z) all in meters in space is given by V=4x2 volts. The electric field at the point (1,0,2) in volt/meter is 1.8 along negative X axis 2.8 along positive X axis 3.16 along negative X axis 4. 16 along positive X axis

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	Graph represresnts q verses V for two capacitors having same plate separation but different plate area . Which is the correct option
	    1. Capacictance of capacitor B is greater than capacitance of A
	    2. Plate area of A is greater than plate area of B
	    3. Capacitance of A is equal to Capacitance of B
	    4. None of the above

35	Three capacitors of 6µf each are connected across a triangle. What is the resultant capacitance across any side of the triangle.
	    1. 6 µf
	    2. 2 µf
	    3. 4 µf
	    4. 12µf