BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA

CHAPTER – ELECTRIC CHARGES &FIELDS

CLASS – XII

SUBJECT – PHYSICS

SHORT ANSWER TYPE QUESTIONS

1. Three charges +4uC, -4uC and 6uC are placed at the vertices of an equilateral triangle of side 4 cm each. Calculate the net force on 6uC charge.
2. A simple pendulum has a length l and the mass of the Bob is m. The Bob is given a charge of q coulomb. The pendulum is suspended between the vertical plates of a charged parallel plate capacitor. If E is the electric field strength between the plates, obtain an expression for the time period of the pendulum.
3. Two small charged spheres A and B have charges 10uC and 40uC respectively, and are held at a separation of 90 cm from each other. At what distance from A, electric intensity would be zero?
4. A charged particle of mass m and charge q initially at rest is released in an electric field of magnitude E. Obtain en expression for its kinetic energy after time t.
5. Each of two point charges are doubled and their distance is halved. Force of interaction becomes n times. What is the value of n?
6. In a certain region of space, electric field is along the Z direction throughout. The magnitude of electric field is, however, not constant but increases uniformly along the positive Z-direction at the rate of 10^5 N/C/m. What are the force and torque experienced by a system having a total dipole moment equal to 10uCm in the negative Z-direction?
7. A spherical rubber balloon carries a charge that is uniformly distributed over its surface. As the balloon is blown up; how does E vary for points (i) inside the balloon, (ii) on the surface of the balloon and (iii) outside the balloon?