Home assignment-I

Subject – PHYSICS

Class-XII

1. Calculate the charge carried by 12.5x10^5 electrons.
2. Calculate the charge on alpha particle.
3. If a body gets out 10^9 electrons every second, how much time is required to get a total charge of 1C from it?
4. Two charges q and 4q are separated by a distance of l .where should a third charge be placed such that it will be in equilibrium?
5. Two charges each q are separated by separation l , what is the nature, magnitude and position of third charge such that all the three charges will be in equilibrium.
6. Obtain the dimensional formulae of dielectric constant.
7. Calculate the distance between two protons such that the electrical repulsion force between them is equal to the weight of either.
8. Two identical metal spheres having equal and similar charges repel each other with a force of 103N when they are placed 10cm apart in a medium of dielectric constant 5 . determine the charge on each sphere.
9. Two point charges value Q and q are placed at distance x and x/2 respectively from third charge of charge4q , all charges are on same straight line. Calculate the magnitude and nature of charge Q, such that net force experienced by charge q is zero.
10. Four point charges each of Q are placed on four corners of a square of side" a". calculate the force on any one of the charge.
11. Three point charges 2C,-3C,and -3C are at vertices A,B and C respectively of an equilateral triangle of side 20 cm. what should be the sigh and magnitude of charge to be placed at mid point of side BC so that charge at A remains in equilibrium.
12. A simple pendulum consists of small sphere of mass m suspended by thread of length L. the sphere carries a charge q . the pendulum is placed in a uniform electric field E ,directed vertically downwards. Find the time period of oscillations.
13. Derive electric field due to charged ring on its axiel position.
14. Obtain the formulae for the electric field due to long thin wire .
15. Calculate electric field due to semi circular charged ring at its centre.

Note:- only go through class notes.