DWARKA INTERNATIONAL SCHOOL (Session 2022-2023)

Class – XII

Subject – Physics

Holiday Homework

Q1. Define electrostatic potential at a point. Write its SI unit.
Q2. Three charges q1, q2 and q3 are kept respectively at points A, B and C of an equilateral triangle.
Write the expression for electrostatic potential energy of the system.

Q3. Depict the equipotential surfaces due to (i) an electric dipole (ii) two identical negative charges.

Q4. (i) Derive an expression for the torque acting on a rectangular current carrying loop kept in a uniform magnetic field B. Indicate the direction of torque.
(ii) What can be the cause of helical motion of a charged particle?

Q5. Two point charges placed at a distance 'r' in air exert a force 'F' on each other. At what distance will these charges experience the same force F in a medium of dielectric constant K

Q6. A voltmeter and a millivolt meter are converted from the same galvanometer. Which of the two has higher resistance? Give reason.

Q7.Two plates of a parallel plate capacitor are 4 mm apart. A slab of dielectric constant 3 and thickness 3 mm is introduced between the plates with its faces parallel to them. The distance between the plates is so adjusted that the capacity of the capacitor becomes $(2/3)^{rd}$ of its original Value. What is the new distance between the plates?

Q8. (i) State the law which gives the direction of the induced emf. (ii)S1 and S 2 are two hollow concentric spheres enclosing charges Q and 2Qrespectively. What is ratio of the electric flux through S1and S2?

Q9. Distinguish Ferromagnetic and Diamagnetic substances.

Q10. Write two characteristics of a material used for making permanent magnet.

Q11. Can electric potential at any point in space be zero while the electric field intensity at that point is non-zero? Give a suitable example to support your answer

Prepare any one investigatory project