HOLIDAY HOMEWORK CLASS 12 PHYSICS

1. Two-point charges qA = 3 mC and qB = – 3 mC are located 20 cm apart in vacuum.
   (a) What is the electric field at the midpoint O of the line AB joining the two charges?
(b) If a negative test charge of magnitude 1.5×10^{-9} C is placed at this point, what is the force experienced by the test charge?

2. An electric dipole with dipole moment 4×10^{-9} C m is aligned at 30° with the direction of a uniform electric field of magnitude 5×10^4 NC^{-1} . Calculate the magnitude of the torque acting on the dipole.

3. A point charge of 2.0 mC is at the centre of a cubic Gaussian surface 9.0 cm on edge. What is the net electric flux through the surface?

4. Two charges 5×10^{-8} C and $–3 \times 10^{-8}$ C are located 16 cm apart. At what point(s) on the line joining the two charges is the electric potential zero? Take the potential at infinity to be zero.

5. A regular hexagon of side 10 cm has a charge 5 mC at each of its vertices. Calculate the potential at the centre of the hexagon.

6. Two charges 2 mC and –2 mC are placed at points A and B 6 cm apart. (a) Identify an equipotential surface of the system. (b) What is the direction of the electric field at every point on this surface?

7. *FIVE QUESTIONS (2/3 MARKS) FROM PAST CBSE QUESTION PAPERS (LAST FIVE YEARS) PAPERS FROM THE FIRST CHAPTER.*

****