



# ST. JOSEPH STUDY CENTRE

12<sup>th</sup> STD: Unit Test-1

PHYSICS

Time: 45 Mins / Total Marks: 25

**I. Answer any 3 of the following questions:**

[3 x 2 = 6]

1. Why electric field lines never intersect?
2. Define Electric field.
3. Define Electric potential at a point.
4. Define electric dipole and electric dipole moment.

**II. Answer any 3 of the following questions:**

[3 x 3 = 9]

5. Derive an expression for electrostatic potential due to a point charge.
6. Derive an expression for the torque experienced by a dipole due to a uniform electric field.
7. Discuss the basic properties of charges.
8. Write a short note on superposition principle.

**III. Answer the following questions:**

[2 x 5 = 10]

9. State Coulomb's law and discuss its various aspects.

[OR]

Derive an expression for the Electric field due to a dipole on its axial line.

10. Derive an expression for the Electric field due to a dipole on its equatorial plane.

[OR]

Derive an expression for electrostatic potential at a point due to an electric dipole.

-----ALL THE BEST-----

Test should be written under the supervision of your parents and get the answer paper signed from them.

No corrections should be made after the test timings. We expect your honesty.

Test Papers have to be submitted after the completion of all the 4 tests.

Submission Date of Test Papers: 1<sup>st</sup> June, 2<sup>nd</sup> June, 3<sup>rd</sup> June

Timings: 9 AM – 12.30 PM / 5 PM- 7 PM