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| **TUTORIALS** |
| **ELECTROMAGNETIC FIELD THEORY** |

**TUTORIAL 1**

a) List Maxwell’s equations in differential and integral form for time varying field.

b) Define Electric flux density.

**TUTORIAL 2**

1. Two equal magnitude charges have 19 N force in between them. They have been kept 8 cm apart. Find the magnitude of the charges.
2. Define magnetic moment.

**TUTORIAL 3**

a) Determine D at (4,0,3) if there is point charge -5Π mC at (4,0,0) and a line charge 3Π mC/m along the y axis.

**TUTORIAL 4**

a) State law of reflection and Snell’s law for plane wave prorogation.

b) If µr=1 and єr=2.5. Find Phase velocity.

**TUTORIAL 5**

1. Write the expression of electric field for incident, reflected and transmitted wave for plane wave at normal incidence.
2. For a lossless transmission line the value of load impedance is 120Ω and characteristic impedance is 50Ω. Calculate the value of Г and s.