Hall Ticket Number :										

R-11 / R-13

Code: 1G234

II B.Tech. I Semester Supplementary Examinations May 2019

Electro Magnetic Fields

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

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1. a) State and explain vector form of Coulombs law.
   b) Three equal point charges 10^{-4} C each are located at the corner of a square side 4m. Determine the magnitude and direction of force at the vacant corner having the charge of 4 μC.

2. a) Derive an expression per energy density in an electro static field.
   b) The point charges -2nC, 8nC, and 6nC are located at (0,0,0) (0,0,2), and (2,0,0) respectively. Find energy in system.

3. a) Derive the integral form of continuity equation.
   b) Explain Polarization of dielectric materials.

4. a) State and explain Biot-savart's law.
   b) Using Biot-savart law, find an expression for the magnetic field intensity in the vicinity of a straight current carrying conductor of finite length.

5. a) Using Ampere's law Determine the magnetic field intensity of coaxial cable
   b) List out limitation of Ampere's circuital law.

6. a) Derive the expression for the torque experienced by the current carrying loop placed in a magnetic Field.
   b) A Rectangular coil of area $10cm^2$ carrying current of 50A lines on plain 2x+6y-3z=7. Such that the magnetic moment of the coil directed away from the origin. Evaluate the magnetic moment.

7. a) Determine self-inductance of a co-axial cable of inner radius a and outer radius b.
   b) Explain B-H curve of magnetic field

8. a) Explain Faraday's laws of Electromagnetic Induction and Derive the expression for induced emf.
   b) Explain the significance of Displacement current.

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