

# **ELECTROMAGNETIC THEORY AND MATERIALS**

**EE-301**

## **ASSIGNMENT 1**

- Q1. Explain Gauss law and state its differential and integral forms.
- Q2. Describe Divergence theorem.
- Q3. Describe Stoke's theorem.
- Q4. Define Gauss's law in Dielectrics.
- Q5. Derive Poisson's and Laplace equations.

## **ASSIGNMENT 2**

- Q1. Explain Biot-Savart's law.
- Q2. State Ampere's circuital law.
- Q3. Explain Hall effect..
- Q4. What is electro-static and magnetic focusing.
- Q5. Write short notes on the different types of magnetic materials.

## **ASSIGNMENT 3**

- Q1. Write short note on band theory of semiconductor materials.
- Q2. Describe p-n junction and p-n devices.
- Q3. Explain band to band transitions.
- Q4. State the theory of pn junction.
- Q5. Write short note on mobility of charge carriers.

## **ASSIGNMENT 4**

- Q1. Explain about electromagnetic waves.
- Q2. Derive wave equation and its solution.
- Q3. What is phase velocity?
- Q4. Describe reflection and refraction.
- Q5. Define Boundary Conditions.

## ASSIGNMENT 5

Q1. Describe conductivity in metals.

Q2. Define electron scattering.

Q3. What is resistivity in metals?

Q4. Explain Superconductivity.