

## Unit - I

- \*\* Stoke's theorem and its application
- \*\* Laplace and Poisson's eq<sup>n</sup>
- \*\* Energy stored per unit volume in electric field
- Gauss's divergence th<sup>n</sup>
- \*\* Mechanical force per unit area
- Electric Flux
- Divergence of Vector Field, Gradient of a scalar function, curl of vector field

## Unit - II

- \*\* Langevin's theory diamagnetic
- \*\* Energy loss per unit volume per cycle (Hysteresis curve)
- \*\* Langevin's theory paramagnetic
- \*\* Domain theory
- $\nabla \times \vec{B} = \mu_0 \vec{J}$  physical significance
- Solenoidal nature of  $\vec{B}$
- Define :- Magnetic Field, Magnetic Induction, Intensity of Magnetisation, Magnetic susceptibility, Magnetic permeability

## Unit - III

- \*\* Maxwell's eq<sup>n</sup>
- \*\* Poynting theorem with physical significance
- \*\* Various Boundary Condition  $\rightarrow \vec{H} \rightarrow \vec{E}$   
 $\rightarrow \vec{B}$
- Homogeneous Maxwell  $\rightarrow \nabla \cdot \vec{E} = \frac{\rho}{\epsilon_0}$ ,  $\nabla \cdot \vec{B} = 0$
- Displacement current.
- Scalar, vector Potential

## Unit - 4

- \*\* J-operation, Circuit containing a resistor, inductor and a capacitor.
- \*\* Parallel Resonance Circuit & Series Resonance Circuit
- \*\* Sharpness of Resonance / LCR circuit
- Impedance of circuit (LCR circuit)
- \*\* LCR circuit
- Phase relation