Unit-I

Chapter 1 : Basic Electrical Parameters 1-1 to 1-34

Syllabus : Direct current (DC), Alternating current (AC), Voltage source and current source : Ideal and practical. Electric current, Electric potential, Potential difference (P.D.), Electromotive force (EMF). Electric work, Power and energy, Resistance, Resistivity, Conductivity, Effects of temperature on resistance, Types of resistors and their applications, Heating effect, Magnetic effect, Chemical effect of electric current.

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Unit-II

Chapter 2 : DC Circuits **2-1 to 2-50**

Syllabus : Ohm's law, Internal resistance of source, Internal voltage drop, Terminal voltage, Resistances in series, Resistances in parallel, Active, Passive, Linear, Non linear circuits, Unilateral circuits and Bilateral circuits, Passive and active networks, Node, Branch, Loop, Mesh. Kirchhoff's current law, Kirchhoff's voltage law.

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- **Review Questions 2-40**
- **1 and 2 Marks Questions With Answers 2-45**

Unit-III

Chapter 3 : Capacitors **3-1 to 3-24**

Syllabus : Capacitor, Parallel plate capacitor, Various connections of capacitor, Energy stored in capacitor, Charging and discharging of capacitor, Breakdown voltage and dielectric strength, Types of capacitors and applications.

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Unit-IV

Chapter 4 : Magnetic Circuits 4-1 to 4-26

Syllabus : Magnetic lines of force, Flux, Flux density, Magnetic flux density, Magneto-motive Force (MMF), Ampere Turns (AT), Reluctance, Permeance, Reluctivity, Electric and magnetic circuits : Series magnetic and parallel magnetic circuit, Magnetization curve (B-H curve), Magnetic hysteresis, Hysteresis loop, Applications.

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Unit-V

Chapter 5 : Electromagnetic Induction 5-1 to 5-30

Syllabus : Development of induced emf and current, Faraday's laws of electromagnetic induction, Static and dynamic emf, Lenz's law, Fleming's right hand rule, Self inductance, Co-efficient of self inductance (L), Mutual inductance, Co-efficient of mutual inductance, Self induced emf and mutually induced emf, Coefficient of coupling, Inductances in series, Types of inductors, Their applications and energy stored in magnetic field.

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