

**Unit - I****Chapter 1 : Introduction to Electric Motors 1-1 to 1-30**

**Syllabus :** Electric motors : Principles of operation of different motors, Construction and representation : Parts with their materials, Schematic diagrams. Functions of parts of motors : Functions of various parts of different electric motors.

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### Unit - II

#### Chapter 2 : DC Machines 2-1 to 2-50

**Syllabus** : DC machine : Types of DC machines, Fleming's right hand rule, Fleming's left hand rule, Principle of operation of dc generator and motor, Back emf and its significance, Voltage equation of DC motor.

Torque and speed : Armature torque, Shaft torque, BHP, Break test, Losses, Efficiency, DC motor starters : Necessity, Two point and three point starters, Speed control of DC shunt and series motor, Flux and armature control, Brushless DC motor : Construction and working.

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### Unit-IV

#### Chapter 4 : Three Phase Transformers 4-1 to 4-29

**Syllabus :** Bank of three single phase transformers, Single unit of three phase transformer, Distribution and power transformers, Construction, Cooling, Three phase transformers connections as per IS : 2026 (Part IV) - 1977, Three phase to two phase conversion (Scott connection), Selection of transformer as per IS : 10028 (Part I) - 1985, Criteria for selection of distribution transformer and power transformer, Amorphous core type distribution transformer, Specifications of distribution transformer as per IS : 1180 (Part I) - 1989, Need of parallel operation of three phase transformer, three phase conditions for parallel operation, Polarity tests on mutually inductive coils and single phase transformers, Polarity test, Phasing out test on three phase transformer, Harmonics and their effects on transformers.

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### Unit-V

#### Chapter 5 : Special Purpose Transformers 5-1 to 5-20

**Syllabus** : Single phase and three phase auto transformers : Construction, Working and applications. Instrument Transformers : Construction, Working and applications of current transformer and Potential transformer. Isolation transformer : Constructional features and applications. Single phase welding transformer : Constructional features and applications. Pulse transformer : Constructional features and applications, K factor of transformers, Over heating due to nonlinear loads and harmonics.

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