

MAJOR BASED ELECTIVE I -ELECTRICAL MACHINES

Unit – I: DC MACHINES

Constructional details of DC machines-Operation of DC generators- EMF equation – Characteristics of different types of generators-Commutation – Armature reaction- Operation of DC motors – Torque equation – Characteristics of different types of DC motors.

Unit II: TRANSFORMERS

Principle –Types-General constructional features of single phase transformers- phasor transformer-phasor diagram and equivalent circuit – Regulation and efficiency – Auto transformers.

Unit III: SYNCHRONOUS MACHINES

Principle-Type and general constructional features – Synchronous generators – characteristics – EMF equation – Armature reaction –Regulation-Power angle curve –Phasor diagram of synchronous motor.

Unit IV: INDUCTION MACHINES

Types-Principles of operation – Types of single phase, induction motor- phasor diagrams and equivalent circuit – Slip torque characteristics – Starting, breaking and speed control methods.

Unit V: MISCELLANEOUS MACHINES (Qualitative study only)

DC/AC Servo motors –Stopping motors- Brushless motors –Reactance and hysteresis motors- Linear induction motors- Cross field machines

BOOKS FOR STUDY AND REFERENCE:

1. A text Book of Electrical machines – R.K. Rajput-Lakshmi Publications –1991.
2. A text Book of Electrical technology – Vol II – AC and DC Machines – Theraja and Theraja - S. Chand & Co., 1990.
3. Electrical Technology – Edward, Hughes – ELBS – 1957
4. Electrical Technology- Cotton – CBS – Delhi 1995.