

AMET-5: ELECTRICAL MACHINES

1 INTRODUCTION

Basic concept of Electrical Engineering; Resistance
Inductance
Capacitance
Resistance connected in series and Parallel
Capacitance connected in series and parallel
Concept of AC/DC currents and AC/DC Voltages,
EMF
Potential difference, Work, Power and Energy.

2 DC NETWORKS

Kirchhoff's Laws,
Node voltage and Mesh current Methods
Delta – Star and Star Delta Conversion
Superposition principle
Thevenin's and Norton's Theorems

3 TRANSFORMER

Construction and principle of X'Mers
EMF equation
Ideal X'Mer
Shell type & Core type X'Mer
Phasor Diagrams
Equivalent Circuits,
Regulation and Efficiency of X'Mer,
Capacity of X'Mer, and Losses,
Introduction to Auto X'Mer

4 DC MACHINES

Construction and Principle of DC generation and DC Motor,
Back emf of DC Motor,
Types of DC Motor,
Reversal of Direction of Rotation of DC Motor,
Starting of DC Motor,
Characteristics of DC Motor,
Uses of DC Motor, Losses in DC Machine.

5 ALTERNATOR

Construction and Working principle of Alternator,
Application of Alternators.

6 SYNCHRONOUS MOTORS

Principle of Operation,
Application of Synchronous Motors

Comparison between Synchronous Motor and Induction Motors