FTEAM03 ELECTRICAL MACHINES

UNIT-1 INTRODUCTION

1.1 Basic concept of Electrical Engineering; Resistance Inductance Capacitance Resistance connected in series and Parallel

1.2 Capacitance connected in series and parallel

1.3 Concept of AC/DC currents and AC/DC Voltages, EMF Potential difference, Work, Power and Energy.

UNIT-2 DC NETWORKS

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

UNIT-3 TRANSFORMER

3.1 Construction and principle of X'Mers EMF equation Ideal X'Mer Shell type & Core type X'Mer Phasor Diagrams Equivalent Circuits,

3.2 Regulation and Efficiency of X'Mer, Capacity of X'Mer, and Losses,

3.3 Introduction to Auto X'Mer

UNIT-4 DC MACHINES

1.1 construction and Principle of DC generation and DC Motor, Back emf of DC Motor, Types of DC Motor,

1.2 Reversal of Direction of Rotation of DC Motor, Starting of DC Motor, Characteristics of DC Motor, Uses of DC Motor, Losses in DC Machine.

UNIT-5 ALTERNATOR

5.1 Construction and Working principle of Alternator, Application of Alternators.

UNIT-6 SYNCHRONOUS MOTORS

6.1 Principle of Operation, Application of Synchronous Motors

6.2 Comparison between Synchronous Motor and Induction Motors

Reference books:

1. Principle of Electrical Machines by Mehta V K and Mehta Rohit
2. Electric Machines by Ashfaq Husain and Harroon Ashfaq
3. Electrical Machinery by P S Bimbhra