

Roll No.

Total Pages : 3

BT-8/M-20

38188

SPECIAL ELECTRICAL MACHINES

Paper-EE-406N

Time Allowed : 3 Hours]

[Maximum Marks : 75

Note : Attempt five questions in all selecting at least one question from each Unit. All questions carry equal marks.

UNIT-I

1. Describe operation principles of single phase Induction motor. Also explain double field revolving theory and prove that a single phase induction motor is not self-starting. 15
- 2 (a) Explain the working principle and applications of single phase shaded-pole motor in detail. 8
- (b) Describe different types of FHP motors and their uses in Industrial applications. 7

UNIT-II

3. Briefly explain the working principle of different types of Linear Induction Motor and Actuators with their applications. 15

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4. Describe high performance energy efficient machines. Also explain the effect of EMF injected into secondary circuit. 15

UNIT-III

5. (a) Why induction generator is used in wind turbines and what types of generations are used in wind turbines? 8
- (b) Describe the DC generator technology used in Biogas power plant. 7
6. Describe Generator types in Tidal turbines. Also explain Conventional design for tidal generators. 15

UNIT-IV

7. (a) Illustrate the different modes of operation of switched reluctance motor. 5
- (b) Determine the step angle of a three phase switched reluctance motor having 12 stator poles and 8 rotor poles. What is the commutation frequency in each phase of 6000 rpm? 5
- (c) Derive the torque equation of a reluctance motor and draw the torque slip characteristics. Mention its applications. 5

8. (a) Describe the Static and Dynamic characteristics of Stepper Motor. 5
- (b) Explain construction and working principle of Servo Motor. 5
- (c) Discuss the application area of different special Electrical machines. 5

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