https://www.kuonline.in

Roll No. ..... Total Pages : 3

BT-8/M-20 **38188**

SPECIAL ELECTRICAL MACHINES-I

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

https://www.kuonline.in

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

https://www.kuonline.in

https://www.kuonline.in

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