

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (EE) PT (Sem.-3)
ASYNCHRONOUS MACHINES

Subject Code : BTEE-401

M.Code : 72163

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.**

SECTION-A

- 1. Answer briefly :**
- a) Give working principle of shaded pole motor.
 - b) State Lenz law.
 - c) Why the core of a machine is laminated?
 - d) What is cogging?
 - e) What is stepping angle?
 - f) Define slip.
 - g) Give the application of stepper motor.
 - h) Give the applications of capacitor start and run single phase induction motor.
 - i) Why starters are used in induction machines?
 - j) What is the use of double cage induction motors?

SECTION-B

2. Explain the construction and working of a deep bar induction motor.
3. Explain the construction & working of autotransformer starter.
4. Explain the method of speed control of 3- phase induction motor by varying the supply voltage.
5. Explain the construction & working of Universal motor.
6. Why an induction generator is not a self-excited generator? How does an isolated induction generator works?

SECTION-C

7. The output of a 3 phase, 50 Hz, 4- pole induction motor is 10H.P. at 1410 rpm. Calculate the starting torque if the maximum torque is developed at 1200 rpm. Neglect stator resistance and mechanical losses.
8. Draw and explain the torque slip characteristics of a three phase induction motor. Hence deduce the condition for maximum starting torque.
9.
 - a. Explain the construction and working of capacitor start capacitor run single phase induction motor.
 - b. Develop the equivalent circuit for a three phase induction motor.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.