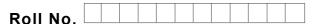
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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electrical & Electronics Engg.) (2013 Onwards)/ B.Tech.(Electronics & Electrical Engg.) (2013 & Onwards)

(Sem.–4)

ELECTRICAL MACHINERY-II

Subject Code : BTEEE-401

M.Code: 72385

Time: 3 Hrs.

Max. Marks : 60

INSTRUCTIONS 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) Define the voltage regulation of a synchronous generator.
- (b) Define Pole Pitch of the synchronous generator.
- (c) What are the advantages of brushless DC motor?
- (d) Define Hunting and oscillations in synchronous machines.
- (e) What is the purpose of starters used in three phase induction motor?
- (f) By which test synchronous reactance of synchronous machine is determined.
- (g) How can the direction of capacitor run motor be reversed?
- (h) What is meant by plugging in three phase induction motor?
- (i) In what ratio line current and starting torque is reduced with star-delta starting of three phase induction motor?
- (j) What is the specialty of universal motor?



SECTION-B

- 2. A 3 phase, 50 Hz, 8 pole synchronous generator has a star connected armature winding with 120 slot and 8 conductors per slot. The flux per pole is 0.05 Wb, sinusoidally distributed. Determine the phase and line voltages.
- 3. Explain the construction details of squirrel cage and slip ring rotor induction motor. Compare the merit and demerit of each type of motor.
- 4. What is infinite bus? State the characteristics of an infinite bus. What are the operating characteristics of an alternator connected to an infinite bus?
- 5. Draw the equivalent circuit of three phase induction motor, also explain torque slip characteristics.
- 6. Explain the double field revolving theory used in single phase induction motor.

SECTION-C

- 7. Explain the working principle of capacitor start single phase induction motor. Why should be the auxiliary winding in a capacitor start motor be disconnected after the motor has picked up speed?
- 8. A 10kW, 400V, 4 pole delta connected squirrel cage induction motor gave the following test results :

No-load test :

400V, 8A, 250W

Blocked rotor test : 90V, 35A, 1350W

The dc resistance of the stator winding per phase measured immediately after the blocked rotor test is 0.60hm. Calculate the rotational losses and the equivalent circuit parameters.

9. A 3 phase squirrel cage induction motor with an applied voltage of 40% gives a blocked rotor current of 250% and internal starting torque of 30% of their corresponding rated values. If an auto transformer limits the starting line current to 150% of the motor full load current, compute the percentage starting torque.

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.