

Q.P. Code :09484

[Time: 3 Hours]

[Marks:60]

Please check whether you have got the right question paper.

- N.B:**
1. Question 1 is compulsory
 2. Attempt any Three question form remaining 5 Questions
 3. Figures on the right indicate full marks
 4. Assume suitable data if any.

- Q.1** Attempt the following (Any Three) **15**
- a) State important features and applications of Brushless DC Motors
 - b) Is Single phase Induction Motor self-starting? Justify the answer.
 - c) Compare the different Starting methods of three phase Induction Motor
 - d) State the significance of commutator and brushes in DC machine.
- Q.2**
- a) Obtain the expression for full load torque of 3- ph induction motor. Also obtain the conduction for maximum torque under running condition at starting. **07**
 - b) Briefly describe the construction, working and control requirements of switches reluctance motor **08**
- Q.3**
- a) A 4-pole, 500 V DC shunt motor has 720 wave connected conductor in the armature. The full load armature current is 60 A and flux per pole is 0.03 wb. The armature resistance is 0.2Ω and the contact drop is 1 V per brush. Calculate the full load speed of the motor **07**
 - b) Explain the construction and working of permanent magnet synchronous motor **08**
- Q.4**
- a) The power input to 6 pole, 3-ph, 50 Hz induction motor is 42 KW, the speed is 970 r.p.m., the stator losses are 1.2 KW and friction and windage losses are 1.8 KW. Find **08**
 - i) Slip
 - ii) The rotor copper loss
 - iii) The b.h.p.
 - iv) The efficiency.
 - b) Explain the construction and operation of variable reluctance stepper motor. **07**
- Q.5**
- a) Discuss briefly, with the neat sketches, armature reaction in DC machine **08**
 - b) Explain the blocked rotor test for single phase induction motor **07**
- Q.6** Write short note on any three: **15**
- a) Squirrel cage induction motor
 - b) DC series motor starter
 - c) Speed control of Brushless DC Motors
 - d) Drive circuits of Stepper Motors