II B. Tech II Semester Regular Examinations, November - 2018
ELECTRICAL MACHINES-II
(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1. a) The frequency of the e.m.f in the stator of a 4 pole induction motor is 50Hz, and that in the rotor is 1.5 Hz. What is the slip, and at what speed is the motor running? (3M)
   b) Discuss few differences between single cage and double cage motors. (3M)
   c) Write any two applications of Shaded pole motors. (2M)
   d) Discuss briefly any two assumptions made in Potier method. (2M)
   e) Define Synchronizing power coefficient and also mention its units. (2M)
   f) Describe any two main features of Synchronous motor. (2M)

PART -B

2. a) Discuss in detail about the principle of operation of a 3-phase induction motor. (7M)
   b) A 4-pole, 50 Hz, 3-phase induction motor develops a maximum torque of 120 Nm at 1460 r.p.m. The resistance of the star connected rotor is 0.35Ω/phase. Determine the value of resistance that must be inserted in series, with each rotor phase to produce a starting torque equal to half the maximum torque. (7M)

3. a) Explain the procedure of drawing the circle diagram of an induction motor. What information can be drawn from the circle diagram. (7M)
   b) What is the purpose of using deep bar cage rotors? Explain the construction and working principle of a deep-bar cage motor. (7M)

4. a) Explain about the double-revolving field theory for single phase induction motors. (7M)
   b) Discuss the procedure for determining the parameters of equivalent circuit of a single phase induction motor. (7M)

5. a) Why is a rotating field system used in preference to a stationary field? (7M)
   b) A star connected 3phase 4pole 50Hz alternator has a single layer winding in 24 stator slots. There are 50 turns in each coil and the flux per pole is 0.05 Wb. Find the open circuit voltage. (7M)

6. a) Discuss and state the conditions necessary for paralleling alternators. (7M)
   b) What are the various methods of synchronizing alternators? (7M)

7. a) What is hunting and discuss briefly various causes for hunting. (7M)
   b) Discuss in detail about Synchronous condenser. (7M)
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