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Reg. No. :

Name :

**Eighth Semester B.Tech. Degree Examination, November 2015
(2008 Scheme)**

08.806 Elective V (i) : SPECIAL ELECTRICAL MACHINES (E)

Time : 3 Hours

Max. Marks : 100

Instructions : Answer *all* questions from Part – A and any *one* question from *each* Module of Part – B.

PART – A



1. Explain the construction of synchronous reluctance motor.
 2. Explain the advantages of armature controlled dc servomotors.
 3. Why ac servo motors are preferred to dc servomotor ?
 4. Compare permanent magnet stepper motors with variable reluctance stepper motor.
 5. Explain the constructional differences of hysteresis motor and reluctance motor.
 6. Draw the torque speed curve of a reluctance motor.
 7. Compare switched reluctance motor with synchronous reluctance motor.
 8. Explain the torque-slip characteristics of hysteresis motor.
 9. Compare the two types of Brushless DC motor.
 10. Why rotor position sensor is essential for the operation of switched reluctance motor ?
- (10×4 = 40 Marks)**

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PART – B

Each full question carries 20 marks.

Module – I

11. a) Discuss the family of torque speed curves of an ac servomotor for various values of control voltage.
b) Explain the torque speed curves of dc servomotor.
12. a) Explain the methods of reducing the step angle in a stepper motor.
b) Explain how stepping action is achieved in a variable reluctance stepping motor.

Module – II

13. a) Derive the expression for the torque developed in a hysteresis motor. Draw the torque slip characteristics.
b) Discuss the factors for the change in hysteresis torque with slip.
14. a) Explain the principle of operation of SRM and obtain the torque equation of SRM.
b) Explain about the different types of power converters used for SRM.

Module – III

15. a) With a neat control circuit explain the working of a BLDC motor.
b) Discuss about the different types of PMBLDC machines.
16. a) Obtain the equivalent circuit of a linear induction motor. State the significance of each parameter.
b) Explain the working of linear reluctance motor. **(3×20 = 60 Marks)**