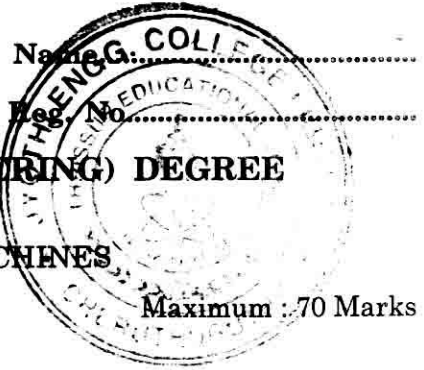


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**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, APRIL 2014**

EE 09 L06—SPECIAL ELECTRICAL MACHINES

Time : Three Hours

Maximum : 70 Marks

Part A

*Answer all questions.
Each question carries 2 marks,*

1. State some applications of stepping Motor.
2. What is reluctance torque in synchronous reluctance motor..
3. Draw the simple block diagram of switched reluctance motor.
4. Why PMBLDC motor called electronically commutated motor ?
5. What are the advantages of load commutation.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Define the terms (a) step angle ; (b) slewing.
7. Mention some advantages, disadvantages and application of synchronous reluctance motor.
8. Draw the schematic diagram and explain the operation of a 'C' dump converter used for the control of SRM.
9. Compare conventional DC motor and PMBLDC motor.
10. State the principle of operation of PMBLDC motor.
11. Derive an expression for synchronous reactance or permanent magnet synchronous motor.

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. (a) Explain the mechanism of torque production in variable reluctance stepping motor.

Or

- (b) Describe the dynamic characteristics of stepper motor.

Turn over

13. (a) Explain the speed-torque characteristics of switched reluctance motor.

Or

(b) Explain the principle of operation and constructional features of synchronous reluctance motor.

14. (a) Derive the torque and e.m.f. equations of PMBLDC motor.

Or

(b) Discuss the use of Hall sensors for position sensing in PMBLDC motor.

15. (a) Explain the vector control of permanent magnet synchronous motor.

Or

(b) Explain Micro processor based control of permanent magnet synchronous motor with a neat block diagram.

(4 × 10 = 40 marks)