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**Question Paper Code : 21201**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

Seventh Semester

Electrical and Electronics Engineering

EE 1001 – SPECIAL ELECTRICAL MACHINES

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the specific characteristics feature of the Repulsion motor.
2. Draw the speed torque characteristics of universal motor for dc and ac input supply.
3. Depending upon the construction, classify the stepper motor.
4. What is step angle and step number?
5. Why rotor position is essential for the operation of Switched Reluctance motor?
6. Draw the speed torque characteristics of Switched Reluctance motor.
7. How do you understand a peak recovery current in PMBLDC motor?
8. Define synchronous reactance of permanent magnet synchronous motor.
9. What are the different types of linear motor?
10. Compare the linear induction motor(LIM) with the Linear Synchronous motor(LSM)

PART B — (5 × 16 = 80 marks)

11. (a) Describe the constructional features and principle of operation of the repulsion motor and explain its phasor diagram. (16)

Or

- (b) Describe the constructional features and principle of operation of the universal motor and explain its phasor diagram. (16)

12. (a) Explain in detail about static and dynamic characteristics of stepper motor. (16)

Or

- (b) Deduce the expression for the linear and non linear analysis of Stepper motor. (16)

13. (a) Discuss the constructional features and principles of operation of Switched Reluctance motor with a neat diagram. (16)

Or

- (b) Explain in detail about the microprocessor based control of Switched Reluctance motor with a necessary block diagram. (16)

14. (a) Structure of the controller PMBLDC motor and explain the function of various blocks with neat sketch. (16)

Or

- (b) Draw the phasor diagram of permanent magnet synchronous motor and hence derive the torque equation. (16)

15. (a) (i) Explain about the construction feature and principle of operation of Linear Induction motor. (12)  
(ii) Explain about the control applications of DC Linear motor. (4)

Or

- (b) (i) Discuss in detail about the constructional features of linear synchronous motor and its types. (12)  
(ii) Explain about one applications of Linear Synchronous motor. (4)