upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.

B 2186

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fourth Semester

Electrical and Electronics Engineering

EE 234 — ELECTRICAL MACHINES — II

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Give difference between cylindrical rotor type synchronous machine and salient pole type machine.

2. Define the term 'voltage regulation' of a synchronous generator.

3. What is hunting? How is hunting minimized?

4. Write the uses of capability curves in a synchronous machine.

5. Draw torque-slip characteristics of induction motor with increasing values of rotor resistance.

6. Why is starter necessary to start 3 phase induction motor?

7. List four methods of speed control in 3 phase induction motor.

8. Compare the performance and applications of Resistance split phase and permanent capacitor single phase induction motors.

9. Mention two advantages in using stepper motors.

10. What is use of a linear motor?

upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.

upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.

upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain EMF method to predetermine the voltage regulation of an alternator. (8)

(ii) Find synchronous impedance and reactance of an alternator in which a given field current produces an armature current of 200 A on short circuit and a generated e.m.f. of 50 V on open circuit. If $R_a = 0.1$ ohm. Find necessary induced voltage to deliver a load of 100 A at a p.f. of 0.8 lagging with a terminal voltage of 200 V. (8)

Or

(b) With step by step procedure obtain the circuit model of synchronous machine. (16)

12. (a) Mention the conditions for proper synchronisation of three phase alternators and explain the method of synchronisation in detail. (16)

Or

(b) Describe the operation and phasor diagram for a salient pole synchronous machine. (16)

13. (a) (i) Derive the expressions for torque, power and efficiency of induction motor. (10)

(ii) The power input to a 3 phase induction motor is 60 kW. The stator losses are 1 kW. Find the mechanical power developed and the rotor copper loss per phase if the motor is running with a slip of 3%. (6)

Or

(b) Explain the construction of circle diagram of an induction motor using the data obtained from (i) no load test (ii) short circuit test and (iii) stator resistance test. (16)

upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.

14. (a) With neat diagrams, explain the working of any two types of starters used for squirrel cage type 3 phase induction motor. (16)

Or

(b) (i) Write about permanent magnet DC motors. (12)

(ii) A 4 pole 3 phase induction motor operates from a supply whose frequency is 50 Hz. Calculate (1) the speed of stator magnetic field and (2) the speed of rotor when the slip is 0.04. (4)

15. (a) Describe the construction and working of permanent capacitor single phase induction motor and shaded pole induction motor. (16)

Or

(b) Explain the construction, working, characteristics and applications of reluctance motor and hysteresis motor. (16)

---

upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.
upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.

upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.
upload your college symposium/conference details,photo(s),video(s) in www.technicalsymposium.com.