Reg. No. : | | | | | | | | | | | | |

**Question Paper Code : 80380**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Fifth Semester

Electrical and Electronics Engineering

EE 6504 — ELECTRICAL MACHINES — II

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Distinguish between full-pitch coil and short-pitch coil.
2. What are the conditions of parallel operation of alternators?
3. What are the various functions of damper winding provided with synchronous motor?
4. What is meant by hunting?
5. How can the direction of rotation of 3 phase induction motor be reversed?
6. What is the advantages of skewing the rotor slots?
7. Why is a starter needed for starting a large capacity induction motor?
8. What are the starting methods of three phase induction motor?
9. State the application of shaded pole motor.
10. Define the term step angle in a stepper motor.

PART B — (5 × 16 = 80 marks)

11. (a) List the methods used to predetermine the voltage regulation of synchronous machine and explain the MMF method. (16)

Or

(b) (i) Describe with neat sketches, the constructional details of a salient pole type alternator. (10)

(ii) Derive the emf equation of an Alternator. (6)

12. (a) Explain about the starting methods of synchronous motor. (16)

Or

(b) Draw the V-and inverted V-curves and explain the effect of excitation on armature current and power factor of synchronous motor. (16)

13. (a) (i) Develop the approximate equivalent circuit of a 3 phase induction motor. (8)

(ii) Draw and explain the torque-Slip characteristics of a 3 phase induction motor. (8)

Or

(b) (i) Explain the operation of Induction machine as a generator with neat diagram. (8)

(ii) Explain the speed torque characteristics of double cage induction motor with a neat diagram. (8)

14. (a) Explain the speed control methods of a three phase induction motor. (16)

Or

(b) With neat diagrams, explain the working of (i) Star-Delta Starter (ii) Auto Transformer Starter for 3 phase induction motor. (16)

15. (a) (i) Explain the operation of a single phase induction motor using double field revolving theory. (8)

(ii) Discuss with neat diagram the operation of shaded pole IM. (8)

Or

(b) Explain the construction and working principle of

(i) A.C. Series motor. (8)

(ii) Hysteresis motor. (8)

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