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FIRST SEMESTER M.TECH. DEGREE EXAMINATION, DECEMBER 2013

EPD 10 105 (B)—DYNAMICS OF ELECTRICAL MACHINES

Time : Three Hours

Maximum : 100 Marks

Answer any **five** *questions by choosing at least one question from each module.*
Each question carried 20 marks.

MODULE I

1. (a) Derive and explain the torque equation for two-pole machine. (10 marks)

   (b) Explain the principle of operation of three phase induction machines. (10 marks)

2. Describe the constructional details of two pole machine with the help of neat diagram. Also derive the expression for voltage.

   (20 marks)

MODULE II

3. Discuss in detail steady and transient analysis of separately excited DC motors. (20 marks)

4. (a) Draw and explain the constructional details of DC machines. (10 marks)

   (b) Explain the principle of operation of DC compound machine. Also name the types of DC compound machines.

   (10 marks)

MODULE III

5. (a) Explain the constructional details of non salient pole machines. (10 marks)

   (b) Draw and explain transient power angle characteristics. (10 marks)

6. (a) Explain in detail the causes of sudden 3-phase short circuit at generator terminals.

   (10 marks)

   (b) Derive the expression for e.m.f. generated in polyphase synchronous machines. (10 marks)

MODULE IV

7. (a) Explain electric transients in induction machines. (10 marks)

   (b) Derive the expression for torque of a three-phase induction motor. (10 marks)

8. (a) Explain the principle of operation of single-phase induction motor. (10 marks)

   (b) Draw and explain equivalent circuit of single phase induction motor. (10 marks)