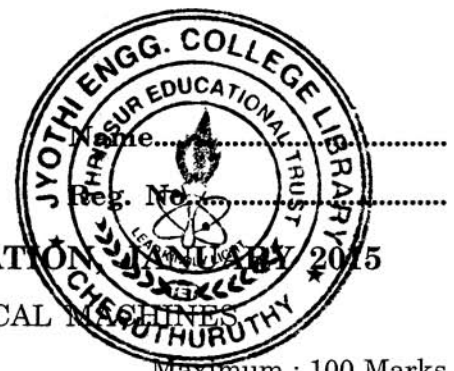


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FIRST SEMESTER M.TECH. DEGREE EXAMINATION

EPD/EPE 10 105 B—DYNAMICS OF ELECTRICAL MACHINES

Time : Three Hours

Maximum : 100 Marks

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

Module I

1. (a) Describe unified approach to analysis of electrical machines. (10 marks)
- (b) State and explain power invariance in detail. (10 marks)
2. (a) Explain transformation from rotating axis to stationary axis of electrical machines. (10 marks)
- (b) State and explain Park's transformation for 3-phase synchronous machines. (10 marks)

Module II

3. State transfer function. Deduce the expression for transfer function of a DC series and compound motor. (20 marks)
4. (a) Explain the principle of operation of separately excited DC generator with the help of neat circuit diagram. (10 marks)
- (b) Draw and explain the various characteristics of DC shunt generators. (10 marks)

Module III

5. (a) Draw and explain the constructional details of salient pole machine. (10 marks)
- (b) Draw and explain steady state power angle characteristics. (10 marks)
6. (a) State and explain in detail short circuit ratio. (10 marks)
- (b) Explain steady state analysis of 3-phase induction generator. (10 marks)

Module IV

7. (a) Derive the expression for condition for maximum torque. (10 marks)
- (b) Explain different characteristics of three-phase induction machine. (10 marks)
8. (a) Describe applications in speed control of induction machine. (10 marks)
- (b) Derive the expression for torques equation of a single-phase induction motor. (10 marks)

[5 × 20 = 100 marks]