

3E1472

Roll No. : _____

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B. Tech. (Sem. III) (ReBack) Till - 2008-09 Examination, January - 2013
Electronic Ins. & Control Engineering
3IC6 Electrical Technology (Common for Main & Back of 3E15 and Reback of IC6)

Time : 3 Hours]

[Total Marks : 80

[Min. Passing Marks : 24

*Attempt any five questions. Selecting one question from each unit.
 All questions carry equal marks. Schematic diagrams must
 be shown wherever necessary. Any data you feel missing
 suitably be assumed and stated clearly. Units of quantities
 used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
 (Mentioned in form No. 205)

1. _____ **NIL** _____2. _____ **NIL** _____**UNIT - I**

- 1 (a) Derive EMF equation of DC machine. 6
- (b) Explain the construction of DC machine in detail. 10

OR

- 1 (a) The power input to a 230V DC shunt motor is 8.477 kW. The field resistance is 230Ω and armature resistance is 0.28Ω . Find the input current, armature current and back emf. 8
- (b) Explain operating characteristics of DC series motor in detail. 8



UNIT - II

- 2 (a) Explain torque slip characteristics of induction motor. Also explain the effect of changes in supply voltage and supply frequency on torque and speed. 12
- (b) What do you mean by cogging and crawling of an induction motor ? 4

OR

- 2 Why 1ϕ induction motor is not self starting ? Write different methods to start squirrel cage induction motor. 16

UNIT - III

- 3 (a) Explain the different power stages in a synchronous motor. 8
- (b) Explain different torques of a synchronous motor. 8

OR

- 3 (a) Explain Basic principle of operation of synchronous motor. 4
- (b) A 1,000KVA, 11,000V, 3ϕ star connected synchronous motor has an armature resistance per phase of 3.5Ω and 40Ω respectively. Determine the induced emf of the rotor when fully loaded at,
- (i) unity point
- (ii) 0.8 point lagging
- (iii) 0.8 point leading 12



UNIT - IV

- 4 (a) Write short note on conductors and insulators for transmission lines. 8
- (b) Draw and explain single line diagram of generation, transmission and distribution system. 8

OR

- 4 (a) Write short note on interfacing of power line with telephone circuits and lines. 8
- (b) Describe complete electrical equipment used in a electrical sub-station. 8

UNIT - V

- 5 (a) What are the different faults occurred in power system ? 8
- (b) What is a relay and how it is used in electrical power system ? Explain its advantages. 8

OR

- 5 Explain in detail about over current relay and how it can be related with static relays. 16

