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8E8101

Roll No. _____

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8E8101

B.Tech. VIII Semester (Main) Examination, April/May 2016

Electronic Instrumentation & Control Engg.

8EI1A Industrial Electronics

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

Instructions to Candidates:

*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.*

Unit - I

1. a) Explain the working of SCR and its V-I characteristics using suitable circuit diagram. (8)
- b) Explain the working principal of GTO (4)
- c) Compare power diode and crystal diode (4)

OR

1. a) Compare power transistor and ordinary transistor (4)
- b) Explain the working principal of IGBT using suitable circuit diagram (8)
- c) Explain the role of latching current and holding current. (4)

Unit - II

2. a) Draw the schematic diagram of single phase bridge rectifier and explain its working using waveform (8)

- b) Compare voltage and current source inverter (8)

OR

2. a) Draw the schematic diagram of voltage source inverter and explain its working using wave form (8)
- b) Explain the working of three phase bridge rectifier (8)

Unit - III

3. a) Compare step up and step down choppers (4)
- b) Draw the schematic diagram of SMPS and explain its working principal using suitable circuit diagram (8)
- c) Explain the working principal of flyback converter. (4)

OR

3. a) Define the need of uninterruptible power supply. Compare UPS with inverter. Explain the working principal of UPS. (8)
- b) Compare boost converter and buck-boost converter. (8)

Unit - IV

4. a) Explain the speed control of three phase induction motor using frequency control method (8)
- b) Compare voltage and frequency control methods of 3- ϕ induction motor (8)

OR

4. Explain the different method of speed control of DC motor (16)

Unit - V

5. a) Explain the working principal of variable reluctance stepper motor (8)
- b) Compare hybrid and permanent magnet stepper motor (8)

OR

5. Write short notes on following

a) Induction Heat control

(8)

b) Dielectric heat control

(8)