EC - 601

B.E. VI Semester

Examination, December 2014

Industrial Electronics

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt one question from each unit.
ii) Each questions carry equal marks.

Unit - I

1. a) Draw and explain the block diagram of a power supply.
b) What is a full-wave bridge regulator? Derive the expressions for rectifier efficiency and ripple factor for this rectifier.

OR

2. a) Draw and explain the working of a rt filter.
b) What is a voltage regulator? Differentiate between fixed and adjustable voltage regulators. What are series and shunt voltage regulators.

Unit - II

3. a) Explain the constructional features and working principle of the SCR. How does it differ from a transistor? What is its two transistor analogy?
b) Discuss the following with reference to SCR.

i) Break down voltage ii) Forward current rating iii) Finger Voltage
iv) Holding current v) Latching current

OR

4. a) Enlist and explain the different methods of turn off of SCR.
b) What is triggering of SCR circuits? Enlist and explain any one method of triggering of SCR circuits.

Unit - III

5. a) What are power diodes? Explain its types. What is reverse recovery time and reverse recovery current in power diodes?
b) Explain the construction and volt-ampere characteristics of the IGBT.

OR

6. a) What are fast recovery diodes? Discuss it advantages and applications.
b) What are the advantages and disadvantages of TRIAC over antiparallel SCR.

Unit - IV

7. a) What is an OP-Amp? What are the characteristics of an Ideal OP-. Amp?
b) What is a window comparator? Explain its working.

OR

8. a) Draw and explain the frequency response of an OP-Amp. b) How can OP-Amp be used as a differentiator and integrator.

Unit - V

9. a) What is a PLC? Why is PLC an event driven device? What are the functions of PLC?
b) What are the functions of input module and multiple modules in a PLC?

OR

10. a) What are the advantages and disadvantages of PLC over conventional relay controllers?
b) Explain the ladder logic language.