Roll No .....

EC - 601

B.E. VI Semester

Examination, June 2014

Industrial Electronics

Time : Three Hours

Maximum Marks : 70

Note: Attempt one question from each unit. All questions carry equal marks. Assume suitable data if necessary.

Unit - I

1. a) A series voltage regulator is required to supply a current of 1 A at constant voltage of 6V. If the supply voltage is 10V and the zener operates in the breakdown region, design the circuit. Assume β=50, V_{BE} = 0.5V and minimum zener current = 10 mA.

   b) Explain the action of a zener voltage regulator with a neat diagram.

OR

2. a) What are the limitations of unregulated power supply? What do you understand by regulated power supply.

   b) Explain the working of SMPS with diagram.

Unit - II

3. a) Describe single phase full wave controlled rectifier with inductive load. Draw the circuit diagram and waveform.

   b) Write the different turn on methods of SCR.

OR

4. a) Describe single phase half wave controlled rectifier with resistive load with waveform and circuit diagram.

   b) What is commutation? Describe operation of class C commutation with circuit diagram.

Unit - III

5. a) Draw the V-I characteristic of a TRIAC and describe four operating mode of TRIAC.

   b) Draw neat sketch of IGBT showing its construction detail. Also draw its V-I characteristic.

OR

6. a) Draw the V-I characteristic of DIAC. Write four operation of it.

   b) What do you understand by power transistor? Draw and explain the switching characteristic of power transistor.

Unit - IV

7. a) What is an OP-AMP. List the four basic building blocks of an OP-AMP.

   b) Draw Wien bridge oscillator using OP-AMP. Explain its working.

OR

8. a) Explain in detail frequency response of OP-AMP.

   b) Write a short note on power supplies using OP-AMP.

Unit - V

9. a) Write the advantages and disadvantages of PLC over conventional relay controllers.

   b) Discuss about the programming formats of PLC.

OR

10. a) Draw the schematic of input modules of PLC and explain them.

    b) Draw the functional block diagram of PLC and explain it.

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