Code: R7421001

R7

B.Tech IV Year II Semester (R07) Supplementary Examinations, March/April 2013

INDUSTRIAL ELECTRONICS

(Common to EIE and E.Con.E)

Time: 3 hours Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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1 (a) Explain about various possible Op-Amp configurations of instrumentation amplifiers.
(b) List out the advantages and disadvantages of instrumentation amplifier.

2 (a) With examples explain different kinds of protection features provided in voltage regulator.
(b) Draw and explain the operation of series type voltage regulator.

3 (a) With a neat circuit diagram describe the operation of an IC shunt voltage regulator circuit.
(b) Give the comparison of linear and switched mode voltage regulators.

4 (a) Explain in detail the turn off mechanism of an SCR.
(b) Explain why the inner two layers of an SCR are lightly doped and are wide.
(c) Explain why the holding current of an SCR is less than the latching current.

5 Draw the circuit of single phase half wave converter with R-L load. Discuss its operation and give the waveforms of output voltage, thyristor voltage and output current.

6 (a) Explain different triggering modes of TRIAC.
(b) Derive expressions for the DC output voltage in a step down DC chopper with resistive load. Assume lossless switch.

7 (a) Describe the principle of electric arc welding.
(b) Describe the principle of working of:
(i) Metal arc welding and (ii) Inert gas arc welding.

8 Describe the typical methods of coupling of electrodes to the R.F. generator for dielectric heating.

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