

Code: R7421001

R07

B.Tech IV Year II Semester (R07) Supplementary Examinations January 2014

INDUSTRIAL ELECTRONICS

(Common to EIE and E.Con.E)

Time: 3 hours

Max. Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 (a) What is meant by residual drift? Explain how this residual drift is compensated in DC amplifiers.
(b) Draw the circuit of a chopper amplifier and explain its working principle.
- 2 (a) What is purpose of regulation in a regulated power supply?
(b) With a neat circuit diagram explain feedback current limiting circuit of a series regulator.
- 3 (a) Sketch an OP-Amp series regulator circuit and explain its operation in detail.
(b) What are adjustable voltage IC regulators? Define an expression for V_O .
- 4 (a) What is meant by catastrophic failure and explain the protection techniques that are used in thyristor circuits?
(b) Define gate power dissipations and explain its importance in SCR.
- 5 Describe the operation of a single phase, two-pulse, mid-point converter with relevant voltage and current waveforms. Discuss how each SCR is subjected to a reverse voltage equal to double the supply voltage in case turns ratio from primary to each secondary is unity.
- 6 (a) What are the principal methods of varying the DC output voltage in DC chopper?
(b) Draw the circuit and describe the principle of operation of a type A single quadrant DC chopper.
- 7 Draw and explain the operation of a speed control of a DC series motor by a single phase semiconverter for the continuous motor current. Draw the associated voltage and current waveforms.
- 8 (a) Explain the coagulating action of ultrasonics.
(b) Explain the chemical, thermal and biological effects of ultrasonics.
