

T 8159

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Fourth Semester

Mechanical Engineering

EC 1264 – ELECTRONICS AND MICROPROCESSORS

(Common to Automobile Engineering and Production Engineering and Common to
B.E (part-time) Regulation 2005, Third Semester)

(Regulation 2004)

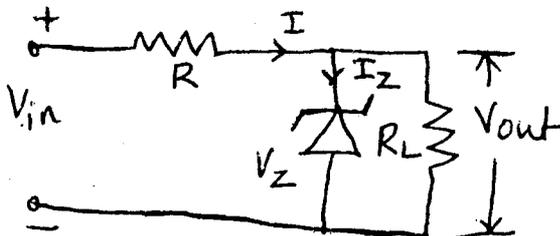
Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define the terms: Drift and Diffusion.
- 2.



Determine the current flowing through the Zener diode for the circuit shown, if $R_L = 5 \text{ k}\Omega$, input Voltage is 50 v, $R = 2 \text{ k}\Omega$ and output voltage is 30 v.

3. Write any two advantages of negative feedback.
4. Define: Break over Voltage.
5. Write the different types of Flip-Flops.
6. What are Binary Counters?
7. Write different external Hardware Synchronization instructions of 8085.
8. Give the Description for the instruction 'RRC' of 8085.

9. Differentiate Polling and Interrupt.
10. State some applications of Microprocessors.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Draw the V-I characteristic of a typical Zener Diode and explain Zener breakdown phenomena. (8)
- (ii) Explain how ion charges produce internal barrier Voltage V_b in a PN junction by showing its depletion zone. (8)

Or

- (b) (i) Explain the characteristics of Full wave rectifier with enough wave forms. (8)
- (ii) Write short notes on the applications of semiconductor diodes. (8)
12. (a) (i) Explain the Input-output characteristics for common base NPN transistor with its neat graphs. (8)
- (ii) Explain the class of operation for amplifiers in terms of output current I_o , with neat sketches. (8)

Or

- (b) (i) Explain, the methods of turning 'ON' and turning 'OFF' the SCR. (8)
- (ii) Describe the common-source amplifier circuit with N-Channel depletion type of FET. (8)
13. (a) (i) Construct a logic diagram from the simplified Boolean expression $\overline{\overline{AB}} + \overline{\overline{BC}} = AB + \overline{BC} = X$. Give its truth table too. (8)
- (ii) Define Flip-Flops. Draw the constructional figure for Reset/set type, flip-flop and explain its stable states with active LOW and active HIGH inputs. (8)

Or

- (b) (i) Justify why the NAND gate is considered as a universal logic gate. (6)
- (ii) Discuss in detail the successive Approximation type of A/D conversion technique with neat sketch. (10)

14. (a) Classify and explain the instructions provided by the 8085 based on the nature of function of the instructions with examples. (16)

Or

- (b) Write a simple program and explain the flow chart for adding two 8-bit numbers. (16)

15. (a) Explain in detail about the different ways of 8085 I/O data transfer.

Or

- (b) Discuss in detail about any one of the applications of Microprocessor [8085] based control technique.