Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

R 3296

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Fourth Semester

(Regulation 2004)

Mechanical Engineering

EC 1264 — ELECTRONICS AND MICROPROCESSORS

(Common to Automobile Engineering and Production Engineering)

(Common to B.E. (Part-Time) Third Semester Regulation 2005)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define zener breakdown voltage.

2. Draw the energy band diagrams for Ge and si.

3. Write any two applications of UJT.

4. List out the various biasing circuits.

5. What are the different types of flip flops?

6. Convert the binary number 110001 into its decimal equivalent.

7. What are the various types of addressing modes in 8085?

8. Explain about the instructions in 8085 (a) SHLD (b) STAX rp.

9. Compare I/O mapped I/O and memory mapped I/O of 8085.

10. Write any two applications of the microprocessor 8085.

PART B — (5 × 16 = 80 marks)

11. (a) Briefly explain the following :

    (i)   Intrinsic semiconductors

    (ii) Extrinsic semiconductors.   (16)

Or

  (b) Explain about the circuitry of

    (i)   Half wave rectifier.   (8)

    (ii) Full wave rectifier and draw its output waveform.   (8)

12. (a) (i) Explain the working of a common emitter amplifier (using transistor) and draw its i/p and o/p characteristics.   (8)

    (ii) Explain about the working of a JFET.   (8)

Or

  (b) (i) Explain the operation of UJT and list its applications.   (8)

    (ii) Explain the basic principle and operation of a SCR.   (8)

13. (a) Design the following digital circuits :

    (i)   Half adder.   (8)

    (ii) Full adder.   (8)

Or

  (b) (i) Reduce the given expression :

    (1) $Y = (A + B + C)(A + B)$

    (2) $Y = AB + ABC + AB\overline{C}$

    (3) $Y = 1 + A(B\overline{C} + BC + \overline{B}\,\overline{C}) + A\overline{\overline{B}}C + AC$

    (4) $Y = \overline{(A + \overline{\overline{B}} + C) + (B + \overline{C})}$.   (8)

    (ii) Explain the working of the following :

    (1)   JK flip flop.   (4)

    (2)   T-flip flop.   (4)

14. (a) With neat block diagram. Explain the architecture of 8085 microprocessor. (16)

Or

(b) Write a simple assembly language program in 8085 to add two 8-bit numbers. (16)

15. (a) Explain about the interfacing I/O devices in 8085 by the technique I/O mapped I/O. (16)

Or

(b) Explain about the interfacing of the stepper motor. (16)

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