C 3184

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fourth Semester

Mechanical Engineering

EC 1264 — ELECTRONICS AND MICROPROCESSORS

(Common to Automobile Engineering/Production Engineering)

(Regulation 2004)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Draw the energy band diagram for an insulating material.

2.   What are extrinsic semiconductors?

3.   Sketch the fixed bias circuit for a BJT.

4.   Write two advantages of negative feed back.

5.   Write four laws of Boolean algebra.

6.   Write the truth table for 2 input NAND gate.

7.   Name two addressing modes of 8085.

8.   List four interrupts of 8085.

9.   List the ports of 8085.

10. Write the control word format of 8255 PPI.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Make a detailed classification of solids based on energy band theory. (8)

    (ii) Compare in detail half wave and full wave rectifiers. (8)

Or

    (b) (i) Discuss with necessary diagrams and waveforms the working of a full wave rectifier. Derive the formula for the average output voltage. (10)

    (ii) How are intrinsic and extrinsic semiconductors different? (6)

12. (a) (i) Compare four different biasing circuits in detail. (4 × 2)

    (ii) Discuss how negative feedback improves stability, increases bandwidth and reduces distortion. (8)

Or

    (b) (i) Differentiate CB, CC, CE configurations of BJT. (8)

    (ii) Discuss the application of triac in temperature control. (8)

13. (a) (i) Discuss the advantages of binary system. (4)

    (ii) With necessary diagrams and truth tables, explain the operation of half adder and full adder. (6 + 6)

Or

    (b) (i) Describe the operation of a 4 bit, binary, ripple counter. (10)

    (ii) Write notes on A/D conversion. (6)

14. (a) (i) Discuss the architecture of 8085. (8)

    (ii) Write about the addressing modes of 8085. (8)

Or

    (b) (i) Discuss in detail, the instruction set of 8085 giving suitable examples for each group. (10)

    (ii) Write an assembly language program to find the biggest and smallest in an array of given numbers. (3 + 3)

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15. (a) Discuss with necessary hardware diagram, flow chart and assembly language program, stepper motor control using 8085. (16)

Or

(b) Describe the operation of a 8085 based traffic light control using suitable diagrams, flow chart and assembly language program. (16)

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