Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : P 1253

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

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.   What is avalanche breakdown?

2.   What are the differences between intrinsic and extrinsic semiconductor?

3.   Define early effect.

4.   Write any four differences between BJT and FET.

5.   How do you implement D flip flop using SR flip flop?

6.   How do you implement EXOR gates using NAND gate only?

7.   Write a 8085 program to multiply the number by six using shift operation

8.   How many interrupts are available in 8085? List out.

9.   What is meant by memory mapped I/O?

10. List any four application of microprocessor in Automobile industry.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain with neat diagram the operation of full wave rectifier and find the ripple factor. (10)

(ii) How do you obtain voltage regulation using zener diode (6)

Or

(b) (i) Draw the forward and reverse characteristics of PN diode and explain its operation (12)

(ii) Explain the zener effect. (4)

12. (a) (i) Explain the common emitter characteristics of BJT and explain its output and input characteristics (10)

(ii) Find I_C and I_E for a transistor for which both the emitter and collector junctions are reverse biased. Assume $I_{CO} = 5\,\mu A$, $I_{EO} = 3.57\,\mu A$ and $\alpha_F = 0.98$. (6)

Or

(b) (i) Explain with neat diagram SCR and its characteristics (input and output characteristics). (10)

(ii) Write an applications of negative feedback in temperature control. (6)

13. (a) (i) Draw and explain the operation of full adder circuit. (10)

(ii) Explain the operation of JK flip flop with truth table. (6)

Or

(b) Explain with neat diagram the operation of Analog to Digital converter and List out the various methods of implementing Analog to digital converter.

14. (a) Draw the block diagram of 8085 and explain each block.

Or

(b) (i) What are the different types of addressing modes available in 8085? (8)

(ii) Write a program to find the greatest number from the given three numbers. (8)

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15. (a) How do you interface the stepper motor with 8085 processor? Give the schematic diagram and program.

Or

(b) (i) Briefly explain microprocessor based temperature controller. (8)

(ii) Write a short notes on traffic light control. (8)

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