Register No: …….

B.E. DEGREE EXAMINATIONS: APRIL/MAY 2011

Fourth Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

U07EC407: Electronics and Microprocessors

Time: Three Hours **Maximum Marks: 100**

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. Which one of the following is true for an intrinsic semiconductor?

(a) $n_i = n = p$ (b) $n_i > n$ (c) $n_i > p$ (d) $n_i < n$

2. Root mean square (rms) current of a full wave rectifier is given by

(a) $2I_m$ (b) $\sqrt{2}I_m$ (c) $\frac{I_m}{2}$ (d) $\frac{I_m}{\sqrt{2}}$

3. β Ratio for current shunt feedback is

(a) $\frac{V_f}{V_0}$ (b) $\frac{V_f}{I_0}$ (c) $\frac{I_f}{I_0}$ (d) $\frac{I_f}{V_0}$

4. η for class – B amplifier is

(a) 50% (b) 87.5% (c) 78.5% (d) 99. 9%

5. Universal gate is

(a) AND (b) OR (c) NOT (d) NAND

6. Racing problem is found in

(a) RS Flip-Flop (b) JK Flip-Flop (c) D Flip-Flop (d) T Flip-Flop

7. Address bus of 8085 microprocessor is

(a) 4 bit (b) 8 bit (c) 16 bit (d) 32 bit

8. 8085 microprocessor is capable of addressing.

(a) 16k (b) 32k (c) 64k (d) 128k

9. 8279 can accept

(a) 2 commands (b) 4 Commands (c) 6 Commands (d) 8 Commands

10. 4 x 4 matrix keyboard requires

(a) 4 lines from µp (b) 8 lines from µp (c) 16 lines from µp (d) 32 lines from µp

PART B (10 x 2 = 20 Marks)

11. What is main difference between semiconductors and metals?

12. What is Zener breakdown?

13. Draw a labeled circuit diagram of p-n-p transistor and define $\propto$ for it.

14. What is Triac?

15. Draw the two input symbol of EX-OR gate and write truth table for it.

16. Draw logic diagram of RS Flip-flop and give truth table for it.
17. What is the main function of instruction register of 8085 microprocessor?
18. What are addressing modes of 8085 microprocessors?
19. What is direct memory access in 8085 microprocessor?
20. Differentiate SIM and RIM Instructions.

PART C (5 x 14 = 70 Marks)

21. a) Explain half-wave rectifier with the help of circuit diagram. Determine relationship between V_{dc} and I_m for half-wave rectifier. (8+6)

(OR)

b) Explain P-N Junction with Schematic diagram. How will you do reverse biasing and forward biasing? Explain with circuit diagrams. (6+4+4)

22. a) (i) What is negative feedback? Draw the figures of 4 topologies of feedback.
(ii) Determine voltage gain for voltage series feedback system (3+6+5)

(OR)

b) Explain common emitter configuration of transistor with circuit diagram. Explain its input and output characteristics (7+7)

23. a) Explain 4 bit full adder with the help of logical diagram and truth table.

(OR)

b) Explain a 3 bit binary ripple counter with the help of logic diagram. Write truth table and give timing diagram of it.

24. a) Explain different types of flags used in 8085 microprocessor with block diagram of flag register. What are their functions?

(OR)

b) (i) What are different arithmetic operators of 8085 microprocessor? Give their mnemonics and opcodes.
(ii) Show addition process of two numbers using ADD opcode, accumulator A and source register C

25. a) Describe interrupt process in 8085 microprocessor.

(OR)

b) How would you interface keyboard and 7 segment LED using 8255A with 8085 microprocessor?

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