Register Number:………………..

M.C.A DEGREE EXAMINATIONS: JUNE 2010

First Semester

MASTER OF COMPUTER APPLICATIONS

MCA501: Computer Organization

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

Answer All Questions:-

PART A (10 x 2 = 20 Marks)

1. Convert the following numbers.

    i) $(736.4)_8$ to Decimal   ii) $(F3)_{16}$ to Binary

2. Simplify the expression F = ABC + ABC' + A'C using Boolean algebra.

3. What is   i) TTL   ii) ECL

4. What is a Multiplexer?

5. List out the Basic Computer Registers.

6. Write an assembly language program to subtract two numbers.

7. Draw the block diagram of connection of I/O bus to input-output devices.

8. Define baud rate.

9. What is page replacement in virtual memory?

10. What is a program counter?

PART B (5 x 16 = 80 Marks)

11. (a) Briefly discuss about Half-Adder and Full –Adder with truth table and logic

    diagram.

(OR)

   (b) (i) Convert the Hexadecimal number F3A7C2 to Binary and Octal.   (8)

      (ii) Perform the arithmetic operations in binary using 2's complement representation

        for negative numbers for the following.   (8)

         (i) (+6) + (+13)   (ii) (-6)+(+13) (iii) (+6)+(-13)   (iv) (-6)+(-13)

12. (a) What are CPU Registers? With a neat diagram, explain in detail about 4-bit registers

        with parallel load.

(OR)

(b) What is micro operation? Explain in detail about 4-bit binary adder and 4-bit binary adder-subtractor with neat block diagram.

13. (a) (i) Explain about the various computer registers?   (8)

   (ii) Discuss the various memory reference instructions with example.   (8)

(OR)

(b) Explain in detail the 2 passes in an assembler.

14. (a) (i) Explain about Strobe control and Handshaking signal with timing diagram?   (8)

   (ii) Write note on Asynchronous serial transfer and Asynchronous Communication interface.   (8)

(OR)

(b) Explain the block transfer between memory and I/O using DMA controller.

15. (a) Explain the organization of Associative memory with a block diagram?

(OR)

(b) (i) Write a note on Stack organization. List and explain the micro operations required for implementing push and pop operations.   (8)

   (ii) Write a note on the various addressing modes supported by computers.   (8)

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