Z 3501

M.C.A. DEGREE EXAMINATION, MAY/JUNE 2008.

First Semester

MC 1601 — COMPUTER ORGANIZATION

(Regulation 2005)

Time : Three hours   Maximum : 100 marks

(Codes/Tables/Charts to be permitted, if any, may de indicated)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Define (r-1)'s complement and r's complement.

2.   Write short notes on Half Adder.

3.   Write short notes on READ and WRITE operations of RAM.

4.   Explain micro operations for Arithmetic Shift.

5.   Define the terms Hard-wired control and Micro programmed control.

6.   What are the micro operations needed for ISZ instruction?

7.   How the 'Strobe' and 'Handshaking' controls are used for transmission?

8.   Define the terms Full Duplex and Half Duplex systems.

9.   How many pages, segments and words can be referred by using 20 bit logical address with 4-bit segment, 8-bit page and 8-bit word?

10.   List out few addressing modes.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Define Karnaugh Map. Implement maps with two, three and four Variables. (6)

    (ii) Simplify the Boolean expression F(ABCD) = $\sum(0, 1, 5, 8, 9, 10)$ in both sum of product and product of sum. (10)

Or

    (b) (i) Explain the procedure to subtract n-digit unsigned numbers (with base 'r'). Give an example. (6)

    (ii) Explain various ways to represent Integer numbers. Write short notes on arithmetic addition and subtraction. Define overflow. (10)

12. (a) (i) Draw a 3 to 8 decoder circuit and explain its operation. (8)

    (ii) With a neat sketch explain 4 × 1 Multiplexer. (8)

Or

    (b) Briefly explain about bidirectional shift register with parallel load. (16)

13. (a) Define Interrupt. Explain flowchart for interrupt cycle with an example. (16)

Or

    (b) Explain the flowchart for multiplying two numbers. Write a program for the same. (16)

14. (a) (i) Explain block diagram of 4 × 4 FIFO buffer Unit. (10)

    (ii) Write short notes on Daisy-chain priority interrupt. (6)

Or

    (b) Draw the block diagram of computer with I/O processor. Briefly explain about Inlet 8086/8089 micro computer architecture. (16)

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15. (a) (i) How set-associative mapping is effective compare with direct mapping? (6)

(ii) Define virtual memory. How physical address is calculated by using virtual address. Explain with example. (10)

Or

(b) (i) How status-bit conditions are implemented in CPU. (8)

(ii) Explain micro operation for subroutine call and return statement. (8)

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