OM- MaTIN

15CS34

htr Semester B.E. Degree Examination, June/July 2019
Computer Organization

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE firll questions, choosing ONE full question from each module.

Module-1

1 a. Explain the connection between processor and memory with neat diagram and show how to add A + B to form C with the help of the same diagram. **(08 Marks)**

b. Write short notes on :
(i) Performance equation (ii) SPEC Rating **(08 Marks)**

OR

2 a. What do you mean by addressing mode? Explain different types of addressing modes with example. **(10 Marks)**

b. Explain shift and rotate instructions with example. **(06 Marks)**

Module-2

3 Write short notes on :
(i) Daisy chain (ii) Subroutine (iii) Interrupt hardware (iv) Exception **(16 Marks)**

OR

4 a. Explain how DMA (with register) is taking place in a system with necessary diagram. **(08 Marks)**

b. Define Bus arbitration. Discuss different types of Bus Arbitration methods with diagram. **(08 Marks)**

Module-3

5 a. With diagram, describe the internal organization of a 128x8 memory chip. **(08 Marks)**

b. With the diagram of basic SRAM (Static RAM) and DRAM (Asynchronous DRAM) chip (cell), explain the read and write operations on each of them. **(08 Marks)**

OR

6 a. Describe different types of cache mapping techniques (between memory to cache memory) with diagram. (10 Marks)

b. Calculate the total capacity of a 4.8 inch disk having the following parameters:
100 data recording surfaces (ii) 100000 tracks per surface (iii) 100 sectors per track (iv) Each track contains 512 bytes of data. **(03 Marks)**

c. In a given system (i) hit rate (n) = 0.5 (ii) Miss penalty (M) = 100 ns (iii) Time to access cache memory (c) = 100 ns. Calculate the average access time (t.) experienced by the processor. **(03 Marks)**

Module-4

7 a. Write down the steps of Booths multiplication algorithm. **(02 Marks)**

b. Perform Booths multiplication between (+13) x 6). **(08 Marks)**

c. Explain generation and propagation functions used in Carry-Look-Ahead Adder. **(06 Marks)**

OR

8 a. Explain Bit-Pair Recording / Fast multiplication with example. **(08 Marks)**

b. Write down the steps of restoring division algorithm. Apply Restoring division algorithm on 1000/11. **(08 Marks)**

Module-5

9 a. Describe Multiple Bus Organization (with diagram). **(08 Marks)**

b. Write down the control sequence for execution of the instruction Add (R_3), R_1 **(08 Marks)**

OR

10 a. What do you mean by micro-instruction? Design Basic organization of a microprogrammed control unit with diagram. **(08 Marks)**

b. Describe a simple microcontroller with diagram. Also mention parallel and serial I/O port in brief **(08 Marks)**