CSE/AM 222 (R-20)

Total No. of Questions : 10] [Total No.of Pages : 02

II/IV B. Tech. DEGREE EXAMINATIONS, AUGUST - 2024

Second Semester

CSE / AM

COMPUTER ORGANIZATION & ARCHITECTURE

Time : **Three Hours** Maximum : **70** Marks

Answer ONE question from each Unit. 5x14=70 M

All Questions carry equal marks.

UNIT - I

1. a) Explain the importance of instruction set in measuring the performance of a computer system.

   b) Explain any four of the addressing modes with suitable examples.

(OR)

2. a) Multiply $(-7)_{10}$ with $(3)_{10}$ by using Booth's multiplication. Give the flow table of the multiplication.

   b) Give a brief on input-output subsystem.

UNIT - II

3. a) Explain the design of micro programmed control unit in detail.

   b) Compare and contrast between Asynchronous DRAM and Synchronous DRAM.

(OR)

4. What is semiconductor memory technology ? List different types of semiconductor memories. Explain the characteristics of each of them.

UNIT - III

5. a) Explain the method of DMA transfer. How does a DMA controller improve the performance of a computer.

   b) Explain the Daisy Chaining priority with neat diagram.

(OR)

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6. a) List the functionalities of I/O interface. Draw and explain a combined input / output interface circuit.

   b) Explore the features and applications of USB.

UNIT - IV

7. What is Pipelining ? Explore different types of Pipeline with suitable examples and their applications.

(OR)

8. a) Differentiate between Sequential computing, Parallel Processing and Parallel Computing.

   b) What is cache coherence and how it is eliminated ? Give a brief.

UNIT - V

9. a) Relate the access speed, size and cost of various memories in memory hierarchy system.

   b) Draw and explain a block diagram of a 4M*32 memory unit using 1M*4DRAM chips.

(OR)

10. a) A two way set associative cache memory uses blocks of four words. The cache can accommodate a total of 2048 words from the main memory. The main memory size is 128K*32.

    (i) Formulate all pertinent information requried to construct the cache memory.

    (ii) What is the size of the cache memory.

    b) What is virtual memory ? With a neat block diagram explain the virtual memory address translation.