CBCS SCHEME

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18EC35

Third Semester B.E. Degree Examination, Feb./Mar. 2022
Computer Organization and Architecture

Time: 3 hrs. Max. Marks: 100

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

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Explain the basic operational concept between the processor and memory with neat block diagram. **(08 Marks)**

b. Explain the various parameters affecting the performance of a computer and also provide the basic performance equation. **(08 Marks)**

c. Write a short note on single bus structure with neat diagram. **(04 Marks)**

OR

2 a. List out and explain the three systems used for representing signed numbers and also brief about the modular number system concept. **(08 Marks)**

b. Explain IEEE standard used for single and double precession floating point number representation with examples. **(08 Marks)**

c. Write a short note on Big-endian and little-endian assignment. **(04 Marks)**

Module-2

3 a. What is addressing mode? Explain any four addressing modes with examples. **(08 Marks)**

b. What are assembler directives? Explain about the various directives used in the program with example. **(08 Marks)**

c. Write a short note on the assembly and execution of programs. **(04 Marks)**

OR

4 a. With neat diagram and program example, explain a simple I/O task between processor, keyboard and display. **(10 Marks)**

b. What is subroutine? Illustrate the subroutine function with parameter passing by value and reference with suitable program. **(10 Marks)**

Module-3

5 a. Explain the concept of memory mapped I/O with neat diagram of I/O interface with program example. **(10 Marks)**

b. Write short notes on: (i) Interrupt hardware (ii) Interrupt nesting **(10 Marks)**

OR

6 a. What is an interrupt? Explain about various implementation techniques of interrupt. **(10 Marks)**

b. Explain how simultaneous interrupt request is handled using the concept of Daisy Chain. **(10 Marks)**

Module-4

7 a. Explain the internal organization of memory chips with example. **(08 Marks)**

b. Explain the internal organization of 2M × 8 DRAM chip with neat diagram. **(08 Marks)**

c. Write a short note on ROM. **(04 Marks)**

OR

8 a. Discuss about the use of cache memory in the processor system. **(08 Marks)**

b. What is virtual memory? Explain its organization with neat diagram. **(08 Marks)**

c. Write a short note on magnetic hard disk. **(04 Marks)**

Module-5

9 a. Explain single-bus organization of the data path inside a processor with neat diagram. **(10 Marks)**

b. Explain the process of fetching a data word from memory using respective registers of a processor with neat diagram. **(10 Marks)**

OR

10 a. Explain the control signal generation required for proper sequence of instructions in the processor. **(10 Marks)**

b. What is microprogrammed control? Explain its basic organization with suitable diagram and example. **(10 Marks)**

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