



Third Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Computer Organization and Architecture

Max. Marks: 100

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

Module-1

- 1 a. With neat diagram, explain the basic operation concept of computer. (10 Marks)
 b. What do you mean by Big Endian and Little Endian? Explain its representation with example. (10 Marks)

OR

- 2 a. What is Looping? Explain generalized program for looping with example. (10 Marks)
 b. What do you mean by Addressing Modes? Explain in detail its different types with example. (10 Marks)

Module-2

- 3 a. Explain in brief I/O operation involving in KB and display device with help of program description. (10 Marks)
 b. Define Interrupt. Explain steps in which ISR handles and also explain its types with example. (10 Marks)

OR

- 4 a. What is DMA? Why DMA? Explain in detail with register in a DMA interface with example. (10 Marks)
 b. What is Bus Arbitration? Explain in detail centralized and distributed arbitration with example. (10 Marks)

Module-3

- 5 a. Draw the internal organization of a $2M \times 8$ dynamic memory chip and explain working with fast page mode. (10 Marks)
 b. State and explain the types of Read Only Memory and memory hierarchy with example. (10 Marks)

OR

- 6 a. What is Cache Memory? Explain different mapping function with diagram. (10 Marks)
 b. What is Virtual Memory? Explain its memory organization and also explain how virtual memory address translation is done with example. (10 Marks)

Module-4

- 7 a. Explain different types of number representation with example and also draw the addition/subtraction logic unit. (10 Marks)
 b. What do you mean by Hardwired Control? Explain control unit organization with how decoding and encoding functions work. (10 Marks)

OR

- 8 a. Design and explain the 4 bit carry look ahead adder with example. (10 Marks)
 b. Explain in detail basic organization of a microprogrammed control unit with its microinstructions. (10 Marks)

Module-5

- 9 a. What is Vector Processing? Explain instruction format for vector processor with example. (10 Marks)
 b. What is Array Processor? Explain attached array processor with host computer with block diagram. (10 Marks)

OR

- 10 a. What is Parallel Processing? Explain processor with multiple functional unit using a neat block diagram. (10 Marks)
 b. Explain with neat diagram, pipeline for floating point addition and subtraction. (10 Marks)

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.

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