

FACULTY OF INFORMATICS

**M.C.A. (2 Years Course) I- Semester (CBCS) (Main & Backlog) Examination,
April/May 2023**

Subject: Computer Architecture

Time: 3 Hours

Max. Marks: 70

Note: I. Answer one question from each unit. All questions carry equal marks.

II. Missing data, if any, may be suitably assumed.

Unit – I

1. a) Illustrate the procedures with examples for conversion of Binary to Octal, Decimal and Hexa- Decimal.
b) Explain about the instruction cycle with a program execution illustration.
(OR)
2. a) Discuss about floating point representation with illustrations.
b) Explain about bus interconnection and its types.

Unit – II

3. a) Write notes on how Register transfer takes place.
b) Describe three instruction code formats.
(OR)
4. a) Construct a 4-bit adder – subtractor.
b) Explain the flowchart for the fetch phase.

Unit – III

5. a) What are the three types of CPU organizations? Explain each with an example.
b) Write and explain the flowchart for the selection of address for control memory.
(OR)
6. a) Evaluate the arithmetic statement $X = (A+B) * (C+D)$ using Three-address instruction, Two- address instruction, One-address instruction, Zero-address instruction, RISC instruction
b) Describe the block diagram of a 64-word stack.

Unit – IV

7. a) Demonstrate associative memory with example.
b) Illustrate set-associative mapping with an example
(OR)
8. a) Illustrate direct mapping with an example.
b) Explain segmentation with a numerical example

Unit – V

9. a) Discuss source and destination initiated asynchronous transfer using handshaking.
b) With a figure, explain DMA transfer.
(OR)
10. a) Explain programmed I/O with an example.
b) Write notes on RISC pipeline.