

Code No: MC2512/25

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURAJADA VIZINAGARAM

MCA I Semester Regular Examinations, December -2025

COMPUTER ORGANIZATION

Time: 3 Hours

Max. Marks: 60

Question Paper consists of FIVE units, each carrying 12 marks
Each unit has TWO questions; either of them should be answered
All parts of a question must be answered at one place.

UNIT-I

Marks

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| 1. | a) | Explain the different types of computers with suitable examples. | 6M |
| | b) | Analyze the role of bus structures in computer architecture. | 6M |

(OR)

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|----|----|---|----|
| 2. | a) | Apply the basic operational concepts of a computer to explain how an instruction is fetched, decoded, and executed. | 6M |
| | b) | Compare and Contrast the multiprocessor and multicomputer systems | 6M |

UNIT-II

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| 3. | a) | Classify different Types of Instructions used in Computer Organization with an example | 6M |
| | b) | Illustrate with example types of Addressing Modes used in computer instruction | 6M |

(OR)

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| 4. | a) | Evaluate the importance of instruction sequencing in program performance. | 6M |
| | b) | Demonstrate how stacks and queues are implemented in memory. | 6M |

UNIT-III

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| 5. | a) | Explain about program-controlled I/O and interrupt-driven I/O. | 6M |
| | b) | Analyze how bus architectures facilitate data transfer between CPU, memory, and I/O modules. | 6M |

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| 6. | a) | With a neat sketch explain the working principle of DMA | 6M |
| | b) | Differentiate between Isolated I/O and Memory-mapped I/O | 6M |

UNIT-IV

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| 7. | a) | Draw a neat block diagram of memory hierarchy in a computer system. Compare the parameters size, speed and cost per bit in the hierarchy. | 6M |
| | b) | Explain about Virtual Memory | 6M |

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| 8. | a) | Explain the following mapping techniques used for cache mapping i) Associative mapping ii) Direct mapping iii) set-associative mapping cache | 6M |
| | b) | Discuss in detail about the different types of ROM | 6M |

UNIT-V

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| 9. | a) | Explain the classification of parallel computers based on Flynn's taxonomy | 6M |
| | b) | With a neat sketch explain the concept of pipelining | 6M |

(OR)

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| 10. | a) | Differentiate between Parallel Processors and Multi Processors | 6M |
| | b) | Analyze the types of pipeline hazards (structural, data, and control hazards). Explain their causes and methods to overcome them. | 6M |