



II B.Tech I Sem Supplementary Examination, July-2022  
**Computer Organization and Microprocessor**  
 (IT)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Answer any FIVE questions.

2. Each question carries 14 marks and may have a, b as sub questions.

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|---|--|-----|-----|------|
| 1 | a) List out the phases for each instruction cycle and show the flowchart for instruction cycle.  | 7M  | C01 | BL-1 |
|   | b) Demonstrate the usage of direct address and indirect address with suitable examples.  | 7M  | C01 | BL-2 |
| 2 | Define control memory and micro programmed control unit. Outline and inspect the block diagram of a control memory and the associated hardware needed for selecting the next microinstruction address.   | 14M | C01 | BL-2 |
| 3 | a) Label the flag register of 8086 and examine the information represented by each flag.   | 7M  | C02 | BL-4 |
|   | b) Illustrate the architecture of the 8086 processor with a neat diagram.  | 7M  | C02 | BL-2 |
| 4 | Name various addressing modes and interpret each addressing mode with syntax and example.  | 14M | C02 | BL-2 |
| 5 | a) Write a program to move the contents of the memory location 0500H to register BX and to CX. Add immediate byte 05H to the data residing in memory location, whose address is computed using DS=2000H and offset=0600H. Store the result of addition in 0700H. Assume that the data is located in the segment specified by the data segment register DS which contain 2000H. | 7M  | C03 | BL-3 |
|   | b) Write an assembly language program to arrange a given series of hexadecimal bytes in ascending order.   | 7M  | C03 | BL-3 |
| 6 | Assess the complete procedure for programming with an assembler with suitable example.   | 14M | C03 | BL-5 |
| 7 | a) Illustrate the mechanism of Booth algorithm for multiplication.   | 7M  | C04 | BL-2 |
|   | b) Analyze various possible modes of data transfer to and from peripherals.  | 7M  | C04 | BL-4 |
| 8 | How the instruction cycle in the CPU can be processed with a four-segment pipeline? Discuss in detail with an example.   | 14M | C05 | BL-3 |