

**FACULTY OF INFORMATICS**  
**M.C.A. (3 Years Course) II -Semester (CBCS) (Backlog) (Old) Examination,**  
**October / November 2023**

**Subject: Computer Organisation**

**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) Compare and contrast SR and JK flip flops.  
(b) Construct the logic circuit for half adder.

**(OR)**

2. (a) Illustrate 2's complement with an example.  
(b) Construct a 2 to 4 line decoder.

**Unit – II**

3. (a) Explain the process of register transfer with an example.  
(b) Develop a logic circuit for shift micro operations.

**(OR)**

4. (a) Describe the fetch and decode phases using flowchart.  
(b) Explain the interrupt cycle with its steps.

**Unit – III**

5. (a) Explain the flowchart of the first pass of assembler.  
(b) Write assembly program for multiplication.

**(OR)**

6. (a) Describe the address sequencing flowchart.  
(b) Explain the format of the microinstruction.

**Unit – IV**

7. (a) Explain the stack organization with its figure.  
(b) Write notes on addressing modes.

**(OR)**

8. (a) Give an overview of pipelining technique.  
(b) Explain the three segment RISC instruction pipeline.

**Unit – V**

9. (a) Explain the interrupt initiated I/O method.  
(b) Describe the data transfer using DMA.

**(OR)**

10. (a) Give an overview of memory hierarchy.  
(b) Write the example of direct mapping in cache memory.

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