



# ST. FRANCIS DE SALES COLLEGE

A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

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## END SEMESTER EXAMINATION – APRIL 2025 COMPUTER SCIENCE – I SEMESTER MCA 24MCA15 – COMPUTER ORGANIZATION & ARCHITECTURE

Time: 3 Hours

Max. Marks: 70

Instruction: *Answer should be written completely in English*

### SECTION - A

Answer any **FIVE** questions. Each question carries **SIX** marks each.

(5X6=30)

1. Differentiate between associative memory, cache memory, and virtual memory with suitable examples.
2. Explain various types of ROM and differentiate between Static and Dynamic RAM.
3. Explain in detail all the general-purpose registers of 8086 architecture.
4. Explain all the flag registers of 8086 architecture.
5. What are arithmetic micro-operations? Explain different types of arithmetic micro-operations.
6. Analyse horizontal and vertical microinstructions in detail.
7. Define parallel processing. Explain how the parallelism is achieved.
8. Explain the key performance metrics used to evaluate processor performance.

### SECTION - B

Answer any **FOUR** questions. Each question carries **TEN** marks each.

(4X10=40)

9. Analyse the importance of input-output interfacing in a computer system. Explain with examples how interrupts enhance the efficiency of data transfers.
10. Draw and explain the pin diagram of 8086 in detail, discussing the role of each pin.
11. Explain in detail the Superscalar Architecture of Pentium Processor with its block diagram.
12. What is DMA? Explain its different transfer modes and how it improves system performance.
13. Explain the working of Binary Adder/Subtractor and Binary Incrementor, including their operations and role of control inputs.
14. Discuss Flynn's Taxonomy in detail with a comparative analysis of SISD, SIMD, MISD, and MIMD architectures.

