UB-7427

Integrated M. C. A. (Sem. II) Examination, June - 2025

IMCA-202T

Computer Architecture

Time Allowed : **Three Hours**

Maximum Marks : **70**

Min. Marks : **28**

Note : *This question paper contains two sections as under :*

Section-A **Max. Marks**

This section will have ***10*** *questions, having* ***02*** *questions from each unit with no internal choice. Answer in about* ***20*** *words. All questions will have* ***equal*** *marks.* ***(10×02=20)***

Section-B **Max. Marks-50**

This section will have ***10*** *questions, having* ***02*** *questions from each unit, one question to be attempted from each unit. Words limit approximately* ***400-500*** *words. Questions may have sub divisions. All questions will have* ***equal*** *marks.* ***(10×05=50)***

SECTION - A

1 (i) Explain instruction set.

(ii) Write down Flynn's classification of computer.

(iii) What is a bus? Explain.

(iv) What is accumulator (AC)? What is its use?

(v) What is the use of Program Counter (PC)?

(vi) What are the function of Control Unit (CU)?

(vii) What is Cache?

(viii) Differentiate b w Machine and Assembly language.

(ix) What are external devices? Give example.

(x) What is cache hit and cache miss?

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SECTION - B

UNIT - I

2 What is Von-neumann Architecture? Explain how a program is executed in this architecture.

OR

Explain the instruction cycle with the help of a neat diagram. Differentiate between fetch and execute cycle.

UNIT - II

3 Describe different types of addressing modes with example. Why are addressing modes important in instruction design?

OR

Explain RISC and CISC architecture. Compare their features and performance.

UNIT - III

4 What is associative memory? Describe its working with a suitable diagram.

OR

Explain cache memory organization. How does cache hit/miss and hit ratio affect system performance?

UNIT - IV

5 Compare and contrast programmed I/O, Interrupt - Driven I/O, and Direct Memory Access (DMA).

OR

Explain the structure and functions of I/O modules with examples of external devices.

UNIT - V

6 Explain the construction and working of CMOS design. Why is CMOS preffered in modern IC design?

OR

Differentiate between current - controlled and voltage - controlled switches. Explain the role of Bipolar Transistor and MOSFET.

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