



II Semester B.C.A. Examination, June/July 2025

(NEP Scheme)

COMPUTER APPLICATIONS

Paper – 2.1 : Computer Architecture

Time : 2½ Hours

Max. Marks : 60

*Instruction : Answer **all** the Sections.*

SECTION – A

I. Answer **any four** questions. **Each** question carries **two** marks.

(4×2=8)

- 1) Define computer architecture.
- 2) What is register ? List different types of registers.
- 3) Define flip – flop. Mention its types.
- 4) Write the symbol and truth table for NOR gate.
- 5) Define RAM and ROM.
- 6) Define operation code and operand.

SECTION – B

II. Answer **any four** questions. **Each** question carries **five** marks.

(4×5=20)

- 7) Simplify  $F(A, B, C, D) = \sum m(1, 5, 7, 8, 9, 13) + \sum d(3, 12)$  using k-map.
- 8) What is MUX ? Explain 4 to 1 line MUX with a neat diagram.
- 9) Explain working of SR flip – flop with a neat diagram.
- 10) Explain different types of computer instructions based on number of address fields.
- 11) Explain I/O interface unit with a neat diagram.
- 12) Explain memory hierarchy in a computer system.

SECTION – C

III. Answer **any four** questions. **Each** question carries **eight** marks.

(4×8=32)

- 13) Explain the working of full adder with a neat diagram.
- 14) a) Explain stack organizations.  
b) Explain address bus, data bus and control bus.

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| 15) Explain different types of addressing modes.                        | 8 |
| 16) a) Explain different types of CPU organizations.                    | 4 |
| b) List the difference between RISC and CISC.                           | 4 |
| 17) Explain the working of DMA controller with a neat diagram.          | 8 |
| 18) a) List the differences between memory mapped I/o and isolated I/o. | 4 |
| b) Explain cache memory.  | 4 |
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