



NP – 431

**II Semester B.C.A. Examination, July/August 2024
(NEP)**

**COMPUTER SCIENCE
2.1 : Computer Architecture**

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer all the Parts.

PART – A

I. Answer **any four** of the following : **(4×2=8)**

- 1) Define bit and byte.
- 2) Give the BCD equivalent of the decimal number $69.27_{(10)}$.
- 3) List the basic computer registers with their functions.
- 4) Mention the steps involved in instruction cycle.
- 5) State any two characteristics of multiprocessor.
- 6) Define virtual memory.

PART – B

II. Answer **any four** of the following : **(4×5=20)**

- 7) Define flip-flop. Explain the working of a JK flip-flop with a neat diagram.
- 8) Simplify $F(A, B, C, D) = \sum(0, 2, 3, 4, 6, 8, 10, 11, 12, 14)$ using K-map and draw a circuit diagram.
- 9) Explain different memory reference instructions.
- 10) Explain different addressing modes.
- 11) Explain three state (3-state) bus buffer.
- 12) Explain memory hierarchy in computer system.

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PART – C

III. Answer **any four** of the following :**(4×8=32)**

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| 13) a) Define decoder. Illustrate 3 to 8 line decoder. | 5 |
| b) Mention the differences between multiprocessor and multicomputer. | 3 |
| 14) a) Define shift register. Explain shift register with parallel load with a neat diagram. | 5 |
| b) What is an integrated circuit ? Give its classification. | 3 |
| 15) a) Explain instruction cycle with flow chart. | 6 |
| b) Write the reverse polish notation for the expression $A * B + C * D$. | 2 |
| 16) Explain data manipulation instructions. | 8 |
| 17) a) Explain DMA controller with a neat block diagram. | 5 |
| b) Compare CISC and RISC. | 3 |
| 18) a) Write a note on cache memory. | 4 |
| b) Explain multithreaded architecture. | 4 |
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