



NP – 166

**II Semester B.C.A. Examination, September/October 2022
(NEP) (2021 – 22 and Onwards)
COMPUTER SCIENCE
2.1 : Computer Architecture**

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer **any four** questions from **each** Section.

SECTION – A

I. Answer **any four** questions. **Each** question carries **2** marks. **(4×2=8)**

- 1) Convert 673_{10} to binary.
- 2) Write the logic symbol, expression and truth table of NAND gate.
- 3) State Demorgan's theorem.
- 4) Define opcode and operand.
- 5) Write BSA instruction.
- 6) Define virtual memory.

SECTION – B

II. Answer **any four** questions. **Each** question carries **5** marks. **(4×5=20)**

- 7) Simplify $F(A, B, C, D) = \sum m(0, 1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13)$ and draw a circuit diagram.
- 8) Define full adder, draw the truth table and logic diagram for the same.
- 9) Explain memory reference instructions.
- 10) Explain the addressing modes.
- 11) Explain interrupt cycle with suitable example.
- 12) Explain Cache memory.

P.T.O.



SECTION – C

III. Answer **any four** questions. **Each** question carries **8** marks. (4×8=32)

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| 13) a) | Differentiate between von Neumann and Harvard architecture. | 4 |
| b) | Explain the working of J.K. flip flop with truth table. | 4 |
| 14) a) | Explain 8 to 3 encoder. | 4 |
| b) | Explain 4 bit shift register. | 4 |
| 15) | Explain common bus organization of basic computer with neat diagram. | 8 |
| 16) | Explain data manipulation instructions. | 8 |
| 17) | Explain isolated versus memory mapped I/O. | 8 |
| 18) | Explain DMA with its block diagram and explain its working. | 8 |
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