

**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.



SECTION - C

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