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) = ∑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)**

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**
