II Semester B.C.A. Examination, August/September 2023
(NEP Scheme)
COMPUTER SCIENCE
2.1 : Computer Architecture

Time : 2½ Hours.

Max. Marks : 60

Instruction : *Answer all the Sections.*

SECTION – A

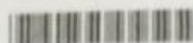I. Answer **any four** questions. **Each** question carries 2 marks.   (4×2=8)

1) Define computer architecture. Mention different types of computer architecture.

2) Write a Gray code for decimal number 1 to 10.

3) What is register ? Define different types of computer register.

4) Differentiate between CISC and RISC.

5) Draw a logic diagram for 4-bit arithmetic circuit.

6) Define different types of semi conductor memories.

SECTION – B

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

7) Simplify $F (W, X, Y, Z) = \Sigma (0, 1, 2, 4, 5, 6, 8, 9, 12, 13, 14)$ using K-Map and draw a circuit diagram for the same.

8) Define shift register. Explain shift register with parallel load along with a neat diagram.

9) Briefly explain common bus system of basic computer with a neat diagram.

10) Write a short note on :
Programmed I/O.

11) Explain different types of CPU organization.

12) Explain memory hierarchy in computer system.

SECTION – C

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

13) i) Explain decoder with neat diagram.   4

  ii) Define flipflop. Illustrate working of JK-flipflops.   4

14) Explain sequential circuit, logic diagram, state table and state diagram
   with example.   8

15) Draw the flow chart for basic computer operation.   8

16) Explain different types of addressing mode.   8

17) i) Explain DMA controller.   4

  ii) Compare RISC and CISC processors.   4

18) i) Explain memory mapped I/O.   4

  ii) Write a note on virtual memory.   4

_____