



SE – 112

I Semester B.C.A. (Full Stack Development) (AI and ML) (Data Science)
Examination, January 2025
(SEP – 2024 – 25)
COMPUTER SCIENCE
24BCA13 : Computer Architecture



Time : 3 Hours

Max. Marks : 80

Instruction : Answer **all** Sections.

SECTION – A

Answer **any 8** of the following.

(8×2=16)

1. Write different types of number system.
2. Convert $1F_{(16)}$ to decimal.
3. Give the logic symbol of AND gate and draw the truth table.
4. State De-Morgans theorems.
5. List the characteristics of combinational circuits.
6. List the registers of a basic computer system.
7. Define stack pointer.
8. List any 2 advantages and disadvantages of assembly language.
9. What are the types of microprocessors ?
10. List the addressing modes of 8085 microprocessor.

SECTION – B

Answer **any 4** of the following.

(4×6=24)

11. Simplify $F(A,B,C,D) = \sum m(1,2,4,5,6,8,9) + \sum d(10,11,14,15)$ using K-map.
12. Explain full adder with a neat diagram. Draw the truth table.
13. What is a shift register ? Explain the types of shift register.
14. Explain the basic computer instruction formats.

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15. What is an addressing mode ? Explain the various addressing modes of 8085 microprocessor.
16. Differentiate between RISC and CISC.

SECTION – C

Answer **any five** questions :

(5×8=40)

17. Draw the flowchart for interrupt cycle.
 18. a) Convert $1934_{(10)}$ to binary.
b) Subtract 14 from 24 using 2's complement.
 19. Prove that NAND and NOR are universal gates.
 20. Explain the SR Flip-Flop with a neat logic diagram.
 21. Explain 4 to 1 line multiplexer with a neat logic diagram.
 22. Explain architecture of 8085.
 23. Explain registers in 8085.
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