

I Semester B.C.A. (Full Stack Development) (Al and ML) (Data Science) Examination, January 2025

(SEP - 2024 - 25)COMPUTER SCIENCE

24BCA13 : Computer Architecture

Time: 3 Hours

Instruction: Answer all Sections.

SECTION - A

Answer any 8 of the following.

- 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.

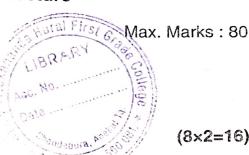
SECTION - B

Answer any 4 of the following.

 $(4 \times 6 = 24)$

- 11. Simplify $F(A,B,C,D) = \Sigma m (1,2,4,5,6,8,9) + \Sigma d (10,11,14,15)$ 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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 $(8 \times 2 = 16)$

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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:

 $(5 \times 8 = 40)$

- 17. Draw the flowchart for interrupt cycle.
- 18. a) Convert 1934₍₈₎ 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.