238031

DCCA113

Reg. No. | | | | | | | | | |

I Semester B.C.A. Degree Examination, January/February - 2025

COMPUTER SCIENCE

Computer Architecture

(SEP-(F) Scheme)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

Answer All the Sections.

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SECTION - A

I. Answer any **TEN** questions. Each question carries **Two** marks. **(10×2=20)**

1. Define Computer Architecture.
2. Define flip flop. Mention its types.
3. Write the Symbol and Truth Table for NAND Gate.
4. Convert $11011_{(2)}$ to gray code.
5. Show that $A + \bar{A}B = A + B$.
6. Define Minterm and Maxterm with an example.
7. What is a 8085 Microprocessor?
8. Define program control instructions.
9. What is the function of JUMP Instructions?
10. What is a Stack Pointer?
11. List the key components of Microprocessor.
12. What is the purpose of the Instructions L × I R_p, 16 - bit data?

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SECTION - B

II. Answer any **SIX** questions. Each question carries **Five** marks. **(6×5=30)**

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13. State and prove De-Morgan's theorems.
14. Explain the working of SR flip flop with a neat diagram.
15. Explain the block diagram of a Digital Computer.
16. Given the Boolean functions $F(A, B, C, D) = \Sigma (0, 2, 5, 7, 8, 10, 13, 15)$. Reduce it by K-Map.
17. Compare CISC and RISC.
18. Define Half-adder. Describe its truth table and block diagram. How a Half adder works?
19. Explain in detail the load and store accumulator instructions (LDA and STA) in 8085 microprocessor.
20. Explain Push and Pop micro-operation in memory stack.

SECTION - C

III. Answer any **THREE** questions. Each question carries **Ten** marks. **(3×10=30)**

21. Explain the working of Bidirectional shift register with parallel load.
22. a) Write a note on:

    i) BUN ii) BSA iii) ISZ

    b) Explain the interrupt cycle with neat diagram.
23. Explain the different types of Addressing models with an example.
24. Explain the instruction classification of 8085 based on operation.
25. Explain the pin diagram of 8085 with a neat diagram.