SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
B.Sc.Computer Science - END SEMESTER EXAMINATIONS - NOV'2024
SEMESTER - I
22UCSCT1002 - Fundamentals of Digital Computer and Microprocessor

Total Duration : 2 Hrs.30 Mins.   Total Marks : 60

Section B

Answer any SIX questions $(6 \times 5 = 30$ Marks)

1. Illustrate the function of an AND gate and provide its truth table.

2. Perform binary addition of 1011 and 1101 using 1's complement and 2's complement methods. Show the steps and the final result.

3. Examine the given K-map for F(A, B, C) with cells 1, 3, 4, 7. Determine the simplified Boolean expression.

4. Construct a D flip-flop and illustrate its data storage and update on each clock edge.

5. Explain the basic architecture of the 8085 microprocessor and its key components.

6. Analyze the use of different addressing modes in an assembly language program for performing data transfer instructions.

7. Write an assembly program to perform addition, subtraction, and logical operations, and check the status of the flag register after each operation.

8. Evaluate the effectiveness of implementing multiple interrupts in the 8085 microprocessor for real-time applications.

Section C

Answer any THREE questions $(3 \times 10 = 30$ Marks)

9. Write a truth table for a circuit with two inputs (A and B) and one output (Y), where Y = A AND B OR NOT A. Show how the output changes for different combinations of A and B.

10. Design a timing diagram for a JK flip-flop and show output changes for different input combinations.

11. Evaluate the efficiency of the 8085 microprocessors in handling interrupts and justify whether it is optimal for real-time applications.

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12. Discover the use of counters and time delays in an assembly program and the method of calculating delays.

13. Assess the performance of different RAM and ROM memory interfaces in the 8085 microprocessors in terms of speed and reliability.

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