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. END SEMESTER EXAMINATIONS NOVEMBER-2022
SEMESTER - I

**22UCSCT1002 - Fundamentals of Digital Computer and Microprocessor (8085)**

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

## Section A

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

1. List the Logic gates with its Logic circuit and truth table.
2. Illustrate sequential logic flip flops with logical diagram and characteristic table.
3. Classify the 8085 Instruction set.
4. Prepare a program to count from 0 to 20H with a delay of 100 ms between each count. After the count 20H, the counter should reset itself and repeat the sequence. Use register pair DE as a delay register. Draw a flowchart and show your calculations to set up the 100 ms delay.
5. Sketch the 8085 Microprocessor pinout diagram and Explain it.
6. Compute the simplified expression for the following Boolean expression using K-Map
   (i) Y $= \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C\bar{D} + \bar{A}BC\bar{D} + \bar{A}BCD + A\bar{B}\bar{C}\bar{D} + A\bar{B}C\bar{D}$
   $+ ABC\bar{D} + ABCD$
   (ii) Y $= \bar{A}\bar{B} + \bar{A}B + AB$
7. Solve the following problem using 1's and 2's Complement
   (i) Binary Addition : 1101010 + 10011
   (ii) Binary Subtraction: 110010 - 1000
8. Predict what the problems on implementing I/O interrupts are.

## Section B

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

9. Apply the base conversion methods to do the following conversion:
   (i) Decimal to Binary – 5673
   (ii) Binary to Hexadecimal – 11100001111
   (iii) Decimal to Octal – 7977
   (iv) Hexadecimal to Binary – A65

**Contd..**

10. Illustrate Multiplexer and Demultiplexer with truth table, pinout diagram and types.
11. Describe Microprocessor architecture and its operation with neat diagram.
12. Prepare an arithmetic calculation (+, -,*, /) program for two variables and write the instructions for data transfer.
13. Distinguish Memory mapped I/O and Direct I/O.

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