2023
B.E.(Computer Science and Engineering),
First Semester
ESC-X06: Digital Electronics

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt <u>five</u> questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

    a) Make a truth table for 3-input AND gate.

    b) What is a flip-flop? Give some of its applications.

    c) Give an example of PLA.

    d) Differentiate between bidirectional shift register and universal shift register.

    e) List two characteristics of ADC and DAC.   (5x2)

UNIT - I

II. Minimize the following expressions using K-maps and realize using NAND gates.
$f_1(A, B, C, D, E) = \Sigma m$ (8, 9, 10, 11, 13, 15, 16, 18, 21, 24, 25, 26, 27, 30, 31)   (10)

III. Draw block diagram of a 1:64 demultiplexer tree and explain the principle of directing the input to the output.   (10)

IV. Write short notes on the following:-

    a) Conversion of flip flops using excitation table.

    b) Boolean Algebra   (2x5)

UNIT - II

V. What is dual slope A/D converter? Draw its circuit and explain its working.   (10)

VI. Design divide-by-5 ripple counter using FLIP-FLOPS.   (10)

VII. Write short notes on the following:-

    a) Ring counter

    b) Parallel in Parallel out shift register   (2x5)

x-x-x