

Roll No.

Total Pages : 02

BT-3/D-19

33109

DIGITAL ELECTRONICS AND LOGIC

DESIGN

IT-207N

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt any five questions in all, selecting one from each unit.

Unit-I

1. Design the circuit using NOR gates only for the given equation $f(A, B, C, D) = \Pi M(1, 2, 3, 4, 6, 9, 11, 13)$ after minimizing using K-map. (15)

2. Compute :

(a) $(11010101)_2 = (\dots\dots\dots)_{10}$

(b) $(256)_{10} = (\dots\dots\dots)_{Hex}$

(c) $(11010101)_2 = (\dots\dots\dots)_{BCD}$

(d) 2's Complement of (110101001)

(e) Minimize $A + A'B$ using Boolean algebra. (15)

Unit-II

3. Design the circuit of 1-bit full Adder and subtractor. (15)

4. Design encoder for 7-Segment Display Unit. (15)

5. Discuss the S-R flip-flop with its characteristic equation and excitation table. Design D-flip-flop using J-K flip-flop. (15)

6. Design mod-5 synchronous counter. (15)

Unit-IV

7. Discuss sample and hold circuit and explain the working of weighted resistor D/A convertor. (15)

8. Design $F(A, B, C) = \Sigma m(0, 1, 3, 5, 7)$ using PAL.