

[illegible]**SIDDHARTHA ENGINEERING COLLEGE**

II/IV B.Tech. DEGREE EXAMINATION, DECEMBER - 2024

## ELECTRONICS AND INSTRUMENTATION ENGINEERING

*Time: 3 hours*

**Max. Marks: 70**

*Answer One Question from each Unit of Part - B*

*Answer to any single question or its part shall be written at one place only*

**PART-A**

**5 x 2 = 10M**

1. a. Convert the following decimal numbers in to 8 bit binary (i) 12 (ii) 69. (CO1 K1)
- b. Convert the binary 1010110 in to gray code. (CO2 K1)
- c. Write down the excitation table of D flip flop. (CO3 K1)
- d. Compare PLA and PAL. (CO4 K1)
- e. Draw the block diagram of a shift register. (CO3 K1)



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PART-B

4 x 15 = 60M

UNIT-I

2. a. Convert the following number systems in to indicated number system.  
i)  $(7564.32)_{10}$  to octal  
ii) AB8CF to binary  
iii) 101110011 to decimal. (CO1 K2) 7M  
b. Implement Ex-OR gate by using NOR-NOR and NAND-NAND Logic. (CO1 K2) 8M

(or)

3. a. Simplify the Boolean function using Quine-McCluskey method  $F(A,B,C,D) = \sum m(0,1,2,5,7,8,9,10,13,15)$  and verify using K-Map. (CO1 K3) 8M  
b. Simplify the following expression using K-Map and implement using NOR gate  $F(W,X,Y,Z) = XZ + W'XY' + WXY + W'YZ + WY'Z$  (CO1 K3) 7M

UNIT-II

4. a. Implement priority encoder and explain its operations. (CO2 K2) 7M  
b. Implement 1x16 De-Mux using 1x8 De-Mux and explain. (CO2 K2) 8M

(or)

5. a. Implement 8x1 Mux using 2x1 mux and explain. (CO2 K2) 8M  
b. Design 2 bit binary to gray code convertor. (CO2 K2) 7M

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UNIT-III



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6. a. Explain RS latch and D flip flop with necessary diagrams. (CO3 K2) 7M  
b. Convert JK flip flop in to T flip flop. (CO3 K2) 8M

(or)

7. a. Design Updown synchronous counter and explain with a neat diagram. (CO3 K2) 8M  
b. Design a Johnson counter and explain its operation with neat diagram. (CO3 K2) 7M

UNIT-IV

8. a. Explain programmable logic array with an example. (CO4 K2) 8M  
b. Explain characteristics of digital ICs. (CO4 K2) 7M

(or)

9. a. Explain ROM as PLD. (CO4 K2) 8M  
b. Differentiate static RAM and Dynamic RAM. (CO4 K2) 7M

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