

Group B

Attempt any Six question

2. Subtract: $1010.110 - 101.101$ using both 2's and 1's complement.
3. Simplify (using k-map) the given Boolean unction in both SOP and POS using the don't case condition d:
 $f(A,B,C,D)=\pi(0,1,3,7,8,12) \pi d(5,10,13,14)$
4. Define decoder. Draw logic diagram and truth table of 3 to 8-line decoder.
5. Define ROM. Implement the following combinational logic function using ROM:

A1	A0	F1	F2
0	0	1	0
0	1	0	1
1	0	1	1
1	1	1	0

6. What are the drawbacks of clocked RS Flip Flop? Explain the operation of JK Flipflop along with its circuit diagram and characteristic table.
7. What is T-Flip Flop? Explain clocked JK Flip-Flop with its logic diagram and truth table.
8. Design MOD-7 counter with state and timing diagram

Group C

Attempt any Two question

9. Define PLA. Design PLA circuit with given funtions.
 $F1(A,B,C)=\Sigma (3,5,6,7)$
 $F2(A,B,C)=\Sigma (0,2,4,7).$
Design PLA Program table also
10. Distinguish between sequential and combinational logic with example? Discuss the design procedure of combinational logic.
11. A sequential circuit with two D flip flops, A and B, two inputs x and y, and one output z, us specified by the following next state and output equations.
 $A(t + 1)=x'y + xA$
 $B(t + 1)=x/B + xA$
 $z=B$

- a. Draw the logic diagram.
- b. Derive the state table.
- c. Derive the state diagram.