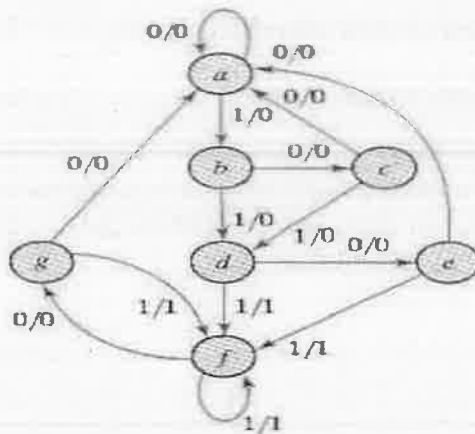




PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	i. Convert the following to the other canonical Form a. $F(A, B, C, D) = \pi(1, 2, 3, 4, 6, 12)$ b. $F(x, y, z) = \sum(1, 3, 7)$	5 5	K3	CO1
	ii. Develop a truth table for the Boolean expression $F = x' y' z$ .	3		
	(OR)			
b)	i. Convert the given expression in canonical SOP form $Y = AC + AB + BC$ .	3	K3	CO1
	ii. Describe in detail about Basic Theorems and properties of Boolean algebra with truth table and logic circuit representation for each laws.	10		
12. a)	Use K-map method to simplify the following Boolean functions $F(A, B, C, D) = \sum(2, 4, 6, 10, 12) + \sum d(0, 8, 9, 13)$ . Implement the Boolean Function, F using not more than two NOR Gates.	13	K3	CO2
	(OR)			
b)	Simplify the following using Quine McCluskey method. $F(A, B, C, D) = \sum(0, 1, 2, 3, 5, 7, 8, 10, 12, 13, 15)$ .	13	K3	CO2
13. a)	Explain the logic diagram of a 4 – input priority encoder, and explain about Priority encoder in detail.	13	K2	CO3
	(OR)			
b)	i. Implement the boolean function using Multiplexer $F(x, y, z) = \sum m(1, 2, 6, 7)$ .	7	K3	CO3
	ii. Implement full adder using De-multiplexer.	6		
14. a)	Design and analyze of clocked sequential circuit with an example.	13	K3	CO4
	(OR)			
b)	i. Determine the reduced state diagram for the given state diagram.	7	K3	CO4



ii. Explain state assignment and its types with suitable example. 6 K2

15. a) Tabulate the PAL programming table for the four Boolean Functions listed below. Minimize the numbers of product terms.  
 $A(x, y, z) = \sum (0, 1, 5, 7)$   $B(x, y, z) = \sum (2, 4, 5, 6)$   
 $C(x, y, z) = \sum (0, 1, 2, 3, 4)$   $D(x, y, z) = \sum (3, 6, 7)$   
 (OR)
- b) A combinational circuit is defined by the functions  
 $A(x, y, z) = \sum m(1, 2, 4, 6)$ ;  $B(x, y, z) = \sum m(0, 1, 6, 7)$ ;  
 $C(x, y, z) = \sum m(2, 6)$  , implement the circuit with a PLA programming.

PART – C

(1 x 15 = 15Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Implement the following functions using de-multiplexer. $f_1(A, B, C) = \sum m(1, 5, 7)$ , $f_2(A, B, C) = \sum m(3, 6, 7)$ (OR)	15	K3	CO3
b)	A sequential circuit has two JK flip-flops, A and B: two inputs, x and y: and one output, z. The flip-flop input functions and the circuit output function are as follows: $JA = Bx + By$ $KA = Bxy$ , $JB = Ax$ $KB = A + xy$ $Z = Axy + Bxy$ <ol style="list-style-type: none"> <li>Draw the logic diagram of the circuit.</li> <li>Obtain the state table.</li> <li>Derive the next state equations for A and B.</li> </ol>	15	K3	CO4