

PART – B

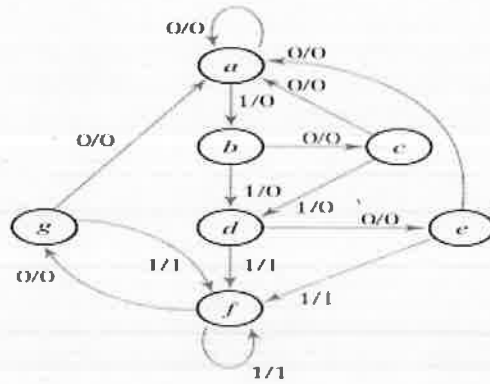
(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	List and explain the properties of gates and switching functions. Also brief out the logical realization of gates and switches.	13	K2	CO1
	(OR)			
b) i.	Convert binary number $(110110.0101)_2$ to $(?)_{10}$	4	K2	CO1
ii.	Convert binary number $(110010111)_2$ to 2's complement.	2		
iii.	Convert $(18.5)_{16}$ to $(?)_{10}$	3		
iv.	Convert $(FBCA)_{16}$ to $(?)_8$	4		
12. a)	Simplify the Boolean expression using K Map and implement with NAND gates.			
i.	$F(w, x, y, z) = \sum(1, 2, 3, 8, 9, 10, 11, 14) + d(7, 15)$	7	K3	CO2
ii.	$F(A, B, C, D) = \sum(0, 2, 3, 5, 7, 8, 9, 10, 11, 13, 15)$	6		
	(OR)			
b)	Minimize $f(A, B, C, D) = (0, 5, 7, 8, 9, 10, 11, 14, 15)$ using tabulation method.	13	K3	CO2
13. a) i.	Design a 3 x 8 decoder using 2 x 4 decoders. Draw the truth table.	7	K3	CO3
ii.	Implement full adder by using two 4x1 multiplexer.	6		
	(OR)			
b)	Implement the following function using PLA.			
i.	$P(x, y, z) = \sum m(1, 2, 4, 6)$	3		
ii.	$Q(x, y, z) = \sum m(0, 1, 6, 7)$	3	K3	CO3
iii.	$R(x, y, z) = \sum m(2, 6)$	3		
iv.	$S(w, x, y, z) = \sum m(7, 8, 9, 10, 11, 12, 13, 14, 15)$	4		
14. a)	Explain the working of the following			
i.	J-K flip-flop	5	K3	CO4
ii.	S- R flip-flop	4		
iii.	D flip-flop	4		
	(OR)			
b)	Design a 3-bit binary counter using T-flip flop.	13	K3	CO4
15. a)	Elucidate the Analysis and Design procedure for synchronous sequential circuit with a suitable example.	13	K2	CO5
	(OR)			
b) i.	Elaborate and explain the types of hazards in sequential circuits with examples.	7	K2	CO5
ii.	Write Short notes on ASM Chart.	6		

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	i. Determine the reduced state diagram for the given state diagram.	10	K3	CO5



ii. With suitable example, enumerate state assignment and its types. 5

(OR)

b) Design a code converter that converts a decimal digit from "8-4-2-1" code to BCD. 15 K3 CO3