R18/R15

ANURAG Engineering College
(An Autonomous Institution)
II B.Tech I Semester Supplementary Examinations, June/July – 2024
SWITCHING THEORY AND LOGIC DESIGN
(COMMON TO EEE & ECE)

Time: 3 Hours **Max. Marks: 75**

Section – A (Short Answer type questions) (25 Marks)
Answer All Questions

	Course Outcome	B.T Level	Marks
1. Convert $(115)_{10}$ and $(235)_{10}$ into hexadecimal numbers.	CO1	L2	2M
2. Implement Ex-OR gate using only NAND gates.	CO1	L2	3M
3. What is meant by Don't care condition.	CO2	L1	2M
4. Compare the functions of Decoder & Encoder.	CO2	L2	3M
5. What is Flip flop?	CO3	L1	2M
6. Differentiate edge triggering and level triggering in sequential circuits.	CO3	L2	3M
7. What is meant by shift register?	CO4	L1	2M
8. Distinguish between synchronous and asynchronous counters.	CO4	L2	3M
9. Classify the blocks of ASM Chart with neat sketch?	CO5	L2	2M
10. Write the capabilities and limitations of Finite State Machines?	CO5	L1	3M

Section B (Essay Questions)
Answer all questions, each question carries equal marks. (5 X 10M = 50M)

		Course Outcome	B.T Level	Marks
11. A)	Given the two binary numbers X=1010101 & Y=1001011, Perform the subtraction X-Y using 1's & 2's complements.	CO1	L3	10M
	OR			
B)	Simplify the following function using K-map $F=ABCD+AB^lC^lD^l+AB^lC+AB$ and realize the SOP using only NAND gates & POS using only NOR gates.	CO1	L3	10M
12. A)	Simplify the Boolean function $F(w,x,y,z)=w^lx^lz^l+w^lyz+w^lxy$ using don't care conditions $d=w^lxy^lz+wyz+wx^lz^l$ in (i) sum of products (ii) product of sums using k-map.	CO2	L3	10M
	OR			
B)	What is meant by Quine-McClusky method? Explain in detail with any example.	CO2	L2	10M
13. A)	Explain Race around condition in the JK flip flop using timing diagram.	CO3	L2	10M
	OR			
B)	Convert SR flip flop into JK flip flop.	CO3	L3	10M
14. A)	Design 3 bit binary counter using T flip flop.	CO4	L3	10M
	OR			
B)	Construct 4 bit bidirectional shift register with parallel load.	CO4	L3	10M
15. A)	Evaluate the Moore type FSM state diagram, state table of serial adder?	CO5	L3	10M
	OR			
B)	Analyze ASM chart for a binary multiplier with an example.	CO5	L3	10M