O.P.Code: 20CS0503b	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech I Year II Semester Regular & Supplementary Examinations August-2023

DIGITAL LOGIC DESIGN
(Common to CSE, CSM, CCC, CIC, CAI)

Time: 3 Hours **Max. Marks: 60**

(Answer all Five Units **5 x 12** = 60 Marks)

		UNIT-I			
1	a	Convert the following numbers: i) $(AB)_{16}=(\quad)_2$ ii) $(1234)_8=(\quad)_{16}$	CO1	L5	4M
	b	Convert (AB33)16 to binary and then to gray code.	CO1	L5	4M
	c	Using BCD arithmetic, perform addition of $(7129)_{10} + (7711)_{10}$	CO1	L5	4M
		OR			
2	a	Express the Boolean function, F=A+B'C in sum of min terms form.	CO1	L1	6M
	b	Convert Y=A(A+B+C) to standard POS form.	CO1	L6	6M
		UNIT-II			
3		Simplify the Boolean function using K-MAP and draw the logic diagram. F (A, B,C,D) =∑m(1,2,3,8,9,10,11,14) + d(7,15)	CO5	L6	12M
		OR			
4	a	Design the circuit using NAND gates for the given function. F= ABC'+DE+AB'D'	CO5	L6	6M
	b	For the given function, design the circuit using NOR gates. F= (X+Y). (X'+Y'+Z')	CO5	L6	6M
		UNIT-III			
5	a	Explain the working of a Carry- Look ahead adder.	CO2	L2	6M
	b	Sketch BCD adder block diagram and explain its working.	CO2	L3	6M
		OR			
6	a	Design and implement the following Boolean function by 8:1 Multiplexer. (A,B,C.D)=Σm(0,1,2,5,7,8,9,14,15).	CO5	L3	6M
	b	Explain in detail about Priority Encoder.	CO4	L2	6M
		UNIT-IV			
7	a	List the advantages and disadvantages of Flipflops.	CO6	L1	6M
	b	What is the difference between Characteristic table and Excitation table? Give the excitation tables of SR, JK, T and D Flipflops.	CO3	L2	6M
		OR			
8	a	What are the steps involved in design of a Synchronous Sequential circuit?	CO1	L2	6M
	b	Define a Register. Explain in detail about various Shift Registers.	CO4	L2	6M
		UNIT-V			
9	a	Define and distinguish between PROM, PLA & PAL.	CO4	L4	6M
	b	Design and implement the following Boolean expressions using PROM. F1(A, B, C) =Σm(0,2,4,7), F2(A,B,C)=Σm(1,3,5,7).	CO6	L5	6M
		OR			
10	a	What is PAL? List its applications.	CO1	L1	4M
	b	Design and implement the following functions using PAL i) A(w,x,y,z) = Σm(0,2,6,7,8,9,12,13) ii) B(w,x,y,z)) = Σm(0,2,6,7,8,9,12,13,14)	CO6	L6	8M

***** END *****