Hall Ticket Number :										

R-14

Code: 4G132

II B.Tech. I Semester Supplementary Examinations February 2022

Digital Logic Design

(Computer Science and Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Convert the following numbers into decimals (i) $(B65F)_{16}$ (ii) $(127.4)_8$ (iii) $(4021.2)_5$ (iv) $(1010110)_2$	8M		
	b)	Expand A + BC'+ ABD'+ ABCD to MIN TERMS and MAX TERMS.	6M		
		OR			
2.	a)	Convert the following decimal numbers to base indicated. i. 7163 to octal ii. 1762 to hex decimal	7M		
	b)	Find the dual of the following expressions (i) (X+Y'+Z)(X'+Z')(X+Y) (ii) (AB'+C)D'+E	7M		
		UNIT–II			
3.	a)	Show that the dual of the exclusive-OR is equal to its complement	7M		
	b)	Simplify the Boolean function using three variable map F(X, Y, Z) = ∑(0,1,5,7)	7M		
		OR			
4.	a)	Make a K-map for the function F(X,Y,Z,W) =XY +XZ' +Z +XW +XY'Z +XYZ and realize the minimized expression using NAND gates only	7M		
	b)	Simplify the Boolean expression using K-MAP F(A,B,C,D) = Σm(1,2,3,8,9,10,11,14) +d(7,15)	7M		
		UNIT–III			
5.	a)	Design and draw a Full Subtractor which will use two Half Subtractors?	7M		
	b)	Explain the functionality of a Multiplexer along with applications?	7M		
		OR			
6.	a)	Realize the function f(A,B,C,D) = Σm (1,2,3,4,6,7,8,10,12,14,15) using 4:1 MUX?	7M		
	b)	Design and implement 4-bit Priority Encoder?	7M		
		UNIT–IV			
7.	a)	Elaborate about Shift Registers?	7M		
	b)	Define a register. Construct a shift register from S-R Flip-Flops. Explain its working.	7M		
		OR			
8.	a)	Construct a JK flip-flop using a D Flip-Flop ,a 2-to-1 line multiplexer and an Inverter?	7M		
	b)	With a neat diagram, explain master slave JK Flip-Flop?	7M		
		UNIT–V			
9.	a)	Describe about Error detection and correction methods used in logic circuits?	7M		
	b)	Explain about programmable logic devices?	7M		
		OR			
10.	a)	Explain Ripple counter operation and its applications using a diagram?	6M		
	b)	Elaborate Random access memory and its types with examples?	8M		

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