H.T No

Regulations: A18

(An Autonomous Institution)

Code No: 7CC55 **Date: 10-Aug-2022 (FN)**

B.Tech II-Year II- Semester External Examination, July/August-2022 (Supplementary)

DIGITAL ELECTRONICS (CSE and IT)

Time: 3 Hours **Max.Marks:70**

Note: *a) No additional answer sheets will be provided.*
b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.
c) Missing data can be assumed suitably.

ANSWER ANY 5 OUT OF 8 QUESTIONS. EACH QUESTION CARRIES 14 MARKS.

Bloom's Cognitive Levels of Learning (BCLL)

Remember	L1	Apply	L3	Evaluate	L5
Understand	L2	Analyze	L4	Create	L6

			BCLL	CO(s)	Marks
1.	a)	Find the 1's complement of -120 using 8-bit signed number representation.	L2	CO1	[7M]
	b)	Draw the AND gate representation using NOR gates.	L2	CO1	[7M]
2.	a)	Simplify Y=A'B'C' D'+A' B' CD'+A' BCD'+A' BCD+AB' C' D'+ABCD'+ABCD using K-map.	L3	CO2	[7M]
	b)	Solve F(A,B,C,D) =∑ m(0,1,2,4,6,8,9,11,13,15) using Quine-Mclusky method.	L4	CO2	[7M]
3.	a)	Design 4-bit parallel adder using full adders.	L3	CO3	[7M]
	b)	How to design 4-bit multiplexer using 2-bit multiplexers? Specify the control signals.	L3	CO3	[7M]
4.	a)	Draw the excitation table and logic diagram for T-flipflop to D-flipflop.	L3	CO4	[7M]
	b)	Construct the Master-slave JK flipflop logic diagram and explain its functionality.	L4	CO4	[7M]
5.	a)	Write the 4-bit Johnson sequence and explain its significance.	L3	CO5	[7M]
	b)	Design 4-bit up/down Asynchronous counter.	L4	CO5	[7M]
6.	a)	Explain RAM and ROM.	L4	CO6	[7M]
	b)	Implement ∑ m(3,5,6,7) using PAL.	L3	CO6	[7M]
7.	a)	Convert $(10101.0111)_2$ to Hexadecimal number.	L3	CO1	[5M]
	b)	Explain POS and SOP form with examples.	L2	CO2	[5M]
	c)	Implement the below logic function *f* using a single multiplexer Assume that the inputs and their complements are available at the input of the multiplexer. *f* (x, y, z) =π (2, 3, 4, 7)	L3	CO3	[4M]
8.	a)	Summarize the characteristic equations of all flipflops.	L2	CO4	[5M]
	b)	Discuss the various kinds of shift registers.	L2	CO5	[5M]
	c)	Distinguish between PAL and PLA circuits.	L2	CO6	[4M]

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