H.T No

Regulations: A18

(An Autonomous Institution)

Code No: 7CC55 **Date: 20-August-2024 (FN)**

B.Tech II-Year II- Semester External Examination, August - 2024 (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.

Bloom's Cognitive Levels of Learning (BCLL)

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

Part - A Max.Marks:20

ANSWER ALL QUESTIONS

		BCLL	CO(s)	Marks
1	Convert the following to the decimal form. i) (01101001.101)2 ii) (A23B)16	L3	CO1	[2M]
2	Obtain dual of the expression AB+A′C+AC+BC.	L2	CO2	[2M]
3	Draw a full subtractor logic diagram with truth table.	L4	CO3	[2M]
4	Write the properties of Bistable latch.	L2	CO4	[2M]
5	Write the applications of flip flops.	L2	CO5	[2M]
6	Differentiate between ROM, PROM.	L4	CO6	[2M]
7	Explain the Properties of XOR Gate.	L2	CO1	[2M]
8	What are the differences between flip flop and latch	L1	CO4	[2M]
9	Differentiate between Synchronous and Asynchronous counter.	L4	CO5	[2M]
10	Write the characteristics of PAL and PLA.	L2	CO6	[2M]

Part – B Max.Marks:50

ANSWER ANY FIVE QUESTIONS. EACH QUESTION CARRIES 10 MARKS.

			BCLL	CO(s)	Marks
11.	a)	Convert $(A1F9)_{16}$ to decimal, binary, octal.	L3	CO1	[5M]
	b)	Realize AND,OR gates from universal gates.	L4	CO1	[5M]
12.	a)	Determine the minimal sum of product form of f(w, x, y, z) = Σm(4, 5, 7, 12, 14, 15) + Ø(3, 8, 10).	L4	CO2	[5M]
	b)	Simplify the following Boolean function f(W,X,Y,Z)=∑m(2,6,8,9,10,11,14,15) using Quine-McClukey method.	L4	CO2	[5M]
13.	a)	Explain the differences between a MUX and a DEMUX.	L4	CO3	[5M]
	b)	Realize a full adder using half adders and explain the truth table.	L4	CO3	[5M]
14.	a)	Explain the operation of positive triggered D-flip flop with the help of a circuit diagram.	L4	CO4	[5M]
	b)	Design a 4-bit parallel in parallel out register.	L2	CO4	[5M]
15.	a)	Design a 4 bit ring counter.	L4	CO5	[5M]
	b)	Design a 4 bit up ripple counter and explain its timing diagram.	L4	CO5	[5M]

16.	a)	What is a programmable device? How it differs from ROM?	L4	CO6	[5M]
	b)	Explain in detail sequential programmable devices.	L4	CO6	[5M]
17.	a)	Given two binary numbers X=1010100 and Y=1000011. Perform i)X-Y ii)Y-X using 2's complement method.	L3	CO1	[4M]
	b)	Obtain dual of the following Boolean expressions i) AB+A(B+C) +B′(B+D) ii) A+B+A′B′C.	L3	CO2	[3M]
	c)	Realize3-bit digital comparator and explain the truth table.	L4	CO3	[3M]
18.	a)	Implement a JK flip flop using SR flip flop.	L4	CO4	[4M]
	b)	Classify types of registers and define them.	L1	CO5	[3M]
	c)	Discuss about SRAM and its usage.	L4	CO6	[3M]

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