

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURUJADA VIZINAGARAM

III B. Tech II Semester Regular/Supplementary Examinations November -2025

DIGITAL LOGIC DESIGN

(CSE)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I			
1.	a)	Design an odd parity checker. Why and where is it used?	[7M]
	b)	Inter convert between SOP and POS logical forms, taking an example of a 3 variable expression.	[7M]
		(OR)	
2.	a)	What is Hamming code? Giving an example, show its efficacy.	[7M]
	b)	Draw the pin diagram and truth table of ICs 7400 and 7486.	[7M]
UNIT-II			
3.	a)	Minimize the function below using K-map method: $F(P, Q, R, S, T) = \pi (0, 1, 2, 4, 6, 8, 12, 13, 14, 15, 17, 18, 24, 27, 30)$	[7M]
	b)	Design a 4-bit BCD adder circuit.	[7M]
		(OR)	
4.	a)	Minimize the function below using Quine McCluskey method: $F(P, Q, R, S, T) = \pi (0, 1, 2, 4, 6, 8, 12, 13, 14, 15, 17, 18, 24, 27, 30)$	[7M]
	b)	Design an excess-3 adder circuit.	[7M]
UNIT-III			
5.	a)	Design a 5-input priority encoder and explain.	[7M]
	b)	How do you compare two numbers in hardware?	[7M]
		(OR)	
6.	a)	Design a seven segment decoder circuit.	[7M]
	b)	Draw the pin diagram of IC 7447 and list its functions.	[7M]
UNIT-IV			
7.	a)	Distinguish between synchronous and asynchronous sequential circuits. Illustrate with examples.	[7M]
	b)	Draw the difference between characteristic features of ICs 7474 and 7475, through their pin diagrams.	[7M]
		(OR)	
8.	a)	Draw the truth and excitation tables of an RS flipflop. What is its function.	[7M]
	b)	Draw the pin diagram of ICs 7490 and 74121 and discuss their function.	[7M]
UNIT-V			
9.	a)	What do you understand by a Transducer? Discuss one that you	[7M]

SET-2

		know.	
	b)	Can you inter-convert between a Moore and Mealy machine? Explain.	[7M]
		(OR)	
10.	a)	Design a sequence generator. Do you think clocked or un-clocked circuits are better? Why?	[7M]
	b)	Design a Moore machine.	[7M]
