KADI SARVA VISHWAVIDHYALAYA

BE Semester III

Examination May /June – 2024

Sub Name: Digital Electronics
Sub code: CT 304 N
Date: 04/05/2024

Time: 12 to 3 pm
Total Marks: 70

Instructions:

1. Answer Each Section in a Separate Answer sheet.
2. Use of Scientific Calculator is permitted. .
3. All questions are separate
4. Indicate clearly, the options you attempted along with its respective question number.
5. Use the last page of supplementary for rough work.

SECTION I

Q.1 (a)	Convert $(125.10)_{10}$ to octal,binary & hexadecimal.	[05]
(b)	Prove that AB +A'C =(A+C) (A'+B)	[05]
(c)	Perform following Binary Addition (1) 100101+1101111 (2) 1010+111	[05]
	OR	
(c)	Reduce the expression: [(A+B') (C+D')]'	[05]
Q.2 (a)	Simplify the following Boolean functions to a Minimum number of literals: XY+XY'	[05]
(b)	Simplify the Boolean function using k-map. F(w,x,y,z) = Σm (0,1,2,4,5, 12,13)	[05]
	OR	
Q.2 (a)	State and explain DeMorgan's law.	[05]
(b)	Obtain the simplified expressions in the product of sums. F (x y z) = ∏M (0 3 6 7)	[05]
Q-3 (a)	Explain In Detail with necessary diagram: NOR implementation as an universal gate.	[05]
(b)	Define & explain Multiplexer in detail.	[05]
	OR	
Q-3 (a)	Draw a 2 to 4 line decoder and explain in detail.	[05]
(b)	Differentiate between multiplexer and demultiplexer.	[05]

SECTION II

Q.4 (a)	Explain basic digital logic gates with symbol & Truth Table.	[05]
(b)	Explain R-S Flip Flop in with truth table & logic diagram.	[05]
(c)	Explain the J-K flip-flop in detail.	[05]
	OR	
(c)	Explain 4-bit up-down binary counter with necessary diagram.	[05]
Q.5 (a)	Define & explain 4- bit register with Parallel load with necessary diagram.	[05]
(b)	Draw & explain 4-bit BCD counter.	[05]
	OR	
Q.5 (a)	Draw & Explain Mealy model for D flip flop.	[05]
(b)	Write a short note on Read only memory (ROM).	[05]
Q-6 (a)	Differentiate between PLA and PAL.	[05]
(b)	What do you mean by the term 'state table'? What do you mean by the term 'state diagram'?	[05]
	OR	
Q-6(a)	Explain any one A/D Converter.	[05]
(b)	Explain any one D/A converter.	[05]
