CONTINUOUS INTERNAL EVALUATION - 3

Dept:EC	Sem / Div:1st D, E, F	Sub: Basic Electronics	S Code: 18ELN14
Date:09/04/21	Time: 9:30-11:00AM	Max Marks: 50	Elective:N

Note: Answer any 2 full questions, choosing one full question from each part.

QN		Questions	Marks	RBT	CO's
		PART A			
1	a	Explain the voltage series feedback circuit and derive an equation for voltage gain Av with feedback.	7	L2	CO1
	b	Explain the basic elements of communication system with block diagram.	7	L2	CO5
	c	State and prove De Morgan's theorem.	6	L2	CO4
	d	Prove the following expression using Boolean Identities. A+BC = (A+B) (A+C)	5	L3	CO4
		OR			
2	a	Explain RC phase-shift oscillator with circuit diagram and necessary equations.	8	L2	CO3
	b	What is a Flip-flop ? Explain the operation of master-slave JK flip-flop.	8	L2	CO4
	c	Find i) $(398.75)_{10} = (?)_2$ ii) $(1011011110111110.11100011)_2 = (?)_{16}$	4	L3	CO4
	d	Prove the following expression using Boolean Identities. (A+B) (A'+C) = AC + A'B	5	L3	CO4
		PART B			
3	a	Explain the operation of IC-555 as an Astable oscillator	8	L2	CO3

		with neat circuit diagram and necessary equations.	
	b	With a block diagram explain the working of a 3-bit ripple counter.	6
	c	Design full adder circuit and implement it using basic gates.	6
	d	Implement the following function using NAND only. F = A+CD'+D'E'	5
		OR	
4	a	With a neat circuit diagram explain the working of Wein-bridge oscillator.	8
	b	What is multiplexer ? Implement 8:1 multiplexer using basic gates.	8
	c	Perform the subtraction with the following binary numbers using 2's complements. i) 1010 – 0101 1100 – 1110	4
	d	Implement the following function using NOR only. F = (C'+A) (C'+E)	5

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