Course Code: 1940402 **Roll No:** **MLRS- R19**

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

II B.Tech II Sem Regular End Examination, August 2021

DIGITAL ELECTRONICS

(EEE)

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

Note: 1. Answer any FIVE questions.
2. Each question carries 14 marks and may have a, b as sub questions.

1	a)	**(i)** Convert the $(1432)_8$ to decimal. **(ii)** $(292)_{10} = (1204)_b$ find the value of b? **(iii)** Multiply 10100.01 and 011 **(iv)** Divide 1010.1 and 101.01	8M	CO1	1
	b)	Prove that in a self complimenting code the sum of the weights must be 9.	6M	CO1	3
2	a)	(i) Simplify the following: (x'+xyz')+(x'+xyz')(x+x'y'z) (ii) Prove the following: y+x'y'+x'yz=xyz'+x'y'+yz (iii) simplify the following such that the resultant expression has the least number of literals: wxyz+w'x'y'z'+w'xy'z+wx'yz'	9M	CO1	1
	b)	How to interface CMOS to TTL gate?	5M	CO1	2
3	a)	Find the minimal product-of-sum expression using k-map. $f(w,x,y,z) = \sum(1,2,6,7,9,13,14,15$	7M	CO2	2
	b)	Find all minimal four-variable functions that assume the value 1 when the minterms 4,10,11,13 are equal to 1, and the value 0 when the minterms 1,3,6,7,8,9,12,14 are equal to 1?	7M	CO2	3
4	a)	Design a BCD to Seven segment decoder and draw a logic diagram and explain its working.	7M	CO2	3
	b)	Write excitation table, truth table and explain function of SR flip-flop with neat logic diagram.	7M	CO3	1
5	a)	Design a modulo-5 binary counter and write its transition and output tables and implement it using T flip-flops.	9M	CO3	3
	b)	Compare asynchronous and synchronous counters in all aspects.	5M	CO3	2
6	a)	What is the largest value of output voltage from an 8-bit DAC that produces 1.0V for a digital input of 00110010?	5M	CO4	1
	b)	Draw the R-2R ladder circuit and explain its working.	9M	CO4	2

7	a)	Explain the working of dual slope A/D converter with neat circuit diagram.	9M	CO4	2
	b)	What are the different semiconductor memory technologies and compare them.	5M	CO5	1
8	a)	What is DRAM? What are the disadvantages of it? How to read and write operations are performed in it?	7M	CO5	2
	b)	Design the following function using PLAs: F1= b'c+a'bc+a'b'c'+b'c' F2=ab'c+ab'c'+a'c'+b'c	7M	CO5	2

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