Course Code: 2040407 **Roll No:** **MLRS-R20**

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, July 2022

Digital Electronics and IC Applications

(EEE)

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

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
Each question carries 10 marks and may have a, b as sub questions.

PART- A

(10*2 Marks = 20 Marks)

1.	a)	Convert the hexadecimal number E3FA to binary	2M	CO1	BL3
	b)	Simplify using Demorgan's theorems to (A+BC') '.	2M	CO1	BL3
	c)	Design Half adder using NAND gate	2M	CO2	BL6
	d)	Design a 2-bit comparator using logic gates	2M	CO2	BL6
	e)	Difference between combinational and sequential circuits	2M	CO3	BL2
	f)	Write the applications of shift register	2M	CO3	BL1
	g)	Write down the drawback of weighted resistor type D/A converter.	2M	CO4	BL1
	h)	What are the advantages and disadvantages of R-2R ladder DAC?	2M	CO4	BL1
	i)	Explain what are the two basic modes in which 555 timer operates	2M	CO5	BL4
	j)	List the applications of 555 timer	2M	CO5	BL1

PART- B

(10*5 Marks = 50 Marks)

2	a)	Implement AND gate using NAND and NOR.	5M	CO1	BL5
	b)	Simplify the following Boolean expression A'C'+ABC+AC'	5M	CO1	BL3
		OR			
3		Explain with examples Error Detecting and Correcting Codes.	10M	CO1	BL4
4	a)	Simplify the following Boolean function using K-Map $F(w,x,y,z)=\sum(1,4,5,6,12,14,15)$	5M	CO2	BL3
	b)	Simplify the following Boolean function using K-Map $F(A,B,C,D)=\pi(1,3,5,7,13,15)$	5M	CO2	BL3
		OR			
5		Simplify the following Boolean function using Tabulation method $F(w,x,y,z)=\sum(0,1,2,8,10,11,14,15)$	10M	CO2	BL3

6	a)	What is race around condition? How it is avoided?	5M	CO3	BL1
	b)	Explain about the ring and twisted ring counter	5M	CO3	BL4
		OR			
7		Design a Mod-5 synchronous counter	10M	CO3	BL6
8	a)	Explain about the Successive Approximation ADC	5M	CO4	BL4
	b)	With circuit diagram, explain the operation of a dual slope A/D Converter.	5M	CO4	BL4
		OR			
9		What are the limitations in weighted resistor type D/A converters and explain how this problem can solve in R-2R ladder type D/A converters	10M	CO4	BL4
10	a)	Explain about the analysis of 1st order LPF Butterworth Filter	5M	CO5	BL4
	b)	Write about the Monostable multivibrator	5M	CO5	BL1
		OR			
11		Explain in detail how would you obtain a square wave in 555 timer	10M	CO5	BL4

---oo0oo---