Course Code: 2050416 **SET-1** **MLRS-R20** 19/12/22 (AN)

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

III B.Tech I Sem Regular End Examination, December 2022

Linear and Digital IC Applications

(ECE)

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)	The two input terminals of an Op-AMP are known as	2M	CO1	BL
	b)	The output voltage of a particular op-amp increases 8 V in 12 μs in response to step on the input. The slew rate is----	2M	CO1	BL
	c)	Draw the block schematic of PLL.	2M	CO2	BL
	d)	What are the advantages of active filters over passive filters?	2M	CO2	BL
	e)	What are the types of ADC?	2M	CO3	BL
	f)	Define resolution of a DAC.	2M	CO3	BL
	g)	Sketch the logic levels for typical CMOS logic circuits.	2M	CO4	BL
	h)	Compare decoder and demultiplexer.	2M	CO4	BL
	i)	Explain about tristate logic in TTL.	2M	CO5	BL
	j)	Compare latch and flip flop.	2M	CO5	BL

PART- B

(10*5 Marks = 50 Marks)

2	a)	Explain with diagram, the working of an inverting amplifier circuit. Obtain the equation for its gain.	5M	CO1	BL
	b)	Define the following terms: (i) Slew Rate. (ii) Thermal drift.	5M	CO1	BL
		OR			
3	a)	Draw and explain the operation of current to voltage converter	5M	CO1	BL
	b)	Explain with diagram, the instrumentation amplifier circuit and its applications.	5M	CO1	BL
4	a)	Draw the circuit diagram of second order low pass filter and explain its operation.	5M	CO2	BL
	b)	With a neat sketch, explain the operation of Quadrature oscillator.	5M	CO2	BL
		OR			

5	a)	Explain the working of a monostable multivibrator using 555 timer.	5M	CO2	BL
	b)	Draw the block diagram of a PLL and mention the function of each block	5M	CO2	BL
6	a)	With a neat diagram, explain working of weighted resistor DAC.	5M	CO3	BL
	b)	Explain the working of a dual slope A to D converter	5M	CO3	BL
		OR			
7	a)	Explain in detail about specifications of DAC.	5M	CO3	BL
	b)	Explain the working of a Flash type A to D converter	5M	CO3	BL
8	a)	Implement full adder with 4 to 1 multiplexer.	5M	CO4	BL
	b)	Implement 64 x 1 multiplexer with four 16 x 1 and one 4 x 1 multiplexer.	5M	CO4	BL
		OR			
9	a)	With a neat circuit diagram explain the analysis and characteristics of standard TTL NAND gate.	5M	CO4	BL
	b)	Give the comparison of various logic families.	5M	CO4	BL
10	a)	Draw and explain 4-bit universal shift register.	5M	CO5	BL
	b)	Explain the differences between asynchronous and synchronous counters. Design a MOD-6 ripple counter.	5M	CO5	BL
		OR			
11	a)	Explain about RAM architecture.	5M	CO5	BL
	b)	Explain about types of RAMS.	5M	CO5	BL

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CO - Course Outcome **BL - Blooms Taxonomy Levels**

Note: 1. Font style: Cambria.

2. Bloom's Taxonomy Level (BL) shall be mentioned for each question.