R22 Regulation *Subject code: 4E4DD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech IV Semester Regular Examinations, July 2024

LINEAR AND DIGITAL IC APPLICATIONS

(Electronics & Communication Engineering)

Maximum Marks: 60 Date:25.07.2024 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

	Part-A	CO	Bloom Tx
All the following questions carry equal marks (10X1M=10 Marks)			
1.a)	Define sensitivity.	CO1	L1
b)	Draw the adder circuit using Op-amp 741	CO1	L3
c)	List the applications of 555 timer	CO2	L2
d)	Define pass band and stop band of a filter	CO2	L1
e)	Define VCO	CO3	L1
f)	What is the main drawback of a dual-slop ADC	CO3	L1
g)	With the help of truth table, explain 3*8 decoder.	CO4	L3
h)	Explain the term Voltage levels for logic '1' & logic '0' with reference to TTL gate	CO4	L2
i)	Write a short note on SIPO register	CO5	L3
j)	Classify different types of ROMs.	CO5	L2
	Part-B		
Answer All the following questions. (5X10M=50Marks)			Bloom Tx level
2	Draw the circuit diagram of an Instrumentation amplifier and explain its working. [10M]	CO1	L3
	OR		
3	A. Derive an expression for slew rate. [5M] B. The input signal to an op-amp is 0.03 sin (1.5 × 105t). What can be the maximum Gain of an Op-Amp with the slew rate of 0.4V/μsec? [5M]	CO1	L4 &L4
4	Derive the expression for the transfer function of first order high pass filter. [10M]	CO2	L3
	OR		
5	Draw functional block diagram of 555 timer and explain its operation. [10M]	CO2	L3
6	Draw and explain the block diagram of PLL and list its applications. [10M]	CO3	L2
	OR		
7	A.Explain successive approximation A/D converter. [7M]	CO3	L3&L1

	B. What is meant by resolution of DAC. [3M]		
8	Compare and contrast the different logic families. [10M]	CO4	L5
	OR		
9	A. Explain the operation of BCD to Binary Code converter. [5M] B. Write a short note on magnitude comparators. [5M]	CO4	L3 & L2
10	A. Design a decade counter using flip-flops. [5M] B. Write a short note on SR flip-flop. [5M]	CO5	L5 & L2
	OR		
11	A. Draw and explain the operation of 6 transistor SRAM. [5M] B. Compare SRAM & DRAM. [5M]	CO5	L3 & L3