Question Paper Code | 12508

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023
Fourth Semester
Electronics and Communication Engineering
20ECPW402 - LINEAR INTEGRATED CIRCUITS WITH LABORATORY
(Regulations 2020)

Duration: 3 Hours　　　　　　　　　　　　　　　　　　Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks, K-Level, CO
1.	Define CMRR.	2,K1,CO1
2.	Define Slew rate and what causes slew rate.	2,K1,CO1
3.	Illustrate the circuit of a Antilog amplifier.	2,K2,CO2
4.	List the applications of comparator.	2,K1,CO2
5.	Visualize the basic building blocks of PLL.	2,K1,CO3
6.	Illustrate the circuit of AM detector using PLL.	2,K2,CO3
7.	Find the number of comparators required for realizing a 4bit flash ADC.	2,K1,CO4
8.	List the main advantages of integrating type ADCs.	2,K1,CO4
9.	List the various applications of multi vibrator.	2,K1,CO5
10.	Define linear voltage regulator.	2,K1,CO5

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11.	a)	Explain the DC characteristics of the operational amplifier.	13,K2,CO1
		OR	
	b)	List and explain the function of all the basic building blocks of an operational amplifier.	13,K2,CO1
12.	a)	With neat sketch explain the operation of an instrumentation amplifier.	13,K2,CO2
		OR	
	b)	Derive the gain of inverting and non-inverting amplifier.	13,K2,CO2
13.	a)	Explain briefly about application of analog multiplier ICs.	13,K2,CO3
		OR	

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create　　　**12508**

b) Discuss the following applications of Analog Multiplier ICs
(i)Voltage squarer.
(ii)Voltage divider.
(iii)Square rooter.
(iv)Phase angle detector.

13,K2,CO3

14. a) Explain the following Digital to Analog & Analog to Digital conversion techniques.
    (i)   Flash type ADC.
    (ii) Weighted resistor DAC.

13,K2,CO4

OR

b) Draw and explain the sample and hold circuit.

13,K2,CO4

15. a) Explain the working principle and salient features of RC phase shift oscillator using IC741.

13,K2,CO5

OR

b) Differentiate between the low pass, high pass and band pass filter. Sketch the frequency plot.

13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) Draw and explain the regenerative comparator circuit and obtain expression for V_{UT} and V_{LT}.

15,K2,CO6

OR

b) Design an Integrator for a frequency of operation of 1KHz.

15,K2,CO6