Reg. No.															

Question Paper Code	12715

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

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.	List the ideal characteristics of an operational amplifier.	2	K1	CO1
2.	A 100pF capacitor has a maximum charging current of 100 micro amps. Find its slew rate.	2	K1	CO1
3.	Show that the peak detector is capable of holding the peak value.	2	K1	CO2
4.	Describe Hysteresis. Mention the causes of Hysteresis in comparator.	2	K1	CO2
5.	Mention the purpose of having a low pass filter in PLL.	2	K1	CO3
6.	List the applications of 555 Timer IC.	2	K1	CO3
7.	List the specifications of ADC and DAC.	2	K1	CO4
8.	An 8 bit A/D converter accepts an input voltage signal of range 0 to 12v. What is the digital output for an input voltage of 6V?	2	K2	CO4
9.	Define Line and Load regulation.	2	K1	CO5
10.	State the uses of switched capacitor filters.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Describe the AC and DC Characteristics of op amp.	13	K2	CO1
		OR			
	b)	Write a note on stability criteria and frequency compensation Technique applied in op-amp.	13	K2	CO1
12.	a)	With a neat diagram explain the application of op amp as a Clipper and Clamper.	13	K2	CO2
		OR			
	b)	Define precision rectifier? With circuit schematic explain the working principle of Half wave and full wave rectifier.	13	K2	CO2
13.	a)	Describe the functional block diagram of PLL and explain all the major components of PLL with equations.	13	K2	CO3

OR

	b) i)	Discuss any two applications of Analog Multiplier ICs.	*5*	*K2*	*CO3*
	ii)	Draw and explain the operation of VCO IC 566.	*8*	*K2*	*CO3*
14.	a) i)	Explain the working of R-2R ladder type DAC.	*8*	*K2*	*CO4*
	ii)	Draw and explain the sample and hold circuit.	*5*	*K2*	*CO4*

OR

	b) i)	Explain the operation of Flash type ADC.	*8*	*K2*	*CO4*
	ii)	Discuss the specifications of data convertors.	*5*	*K2*	*CO4*
15.	a)	Explain the operation of a monolithic switching regulator.	*13*	*K2*	*CO5*

OR

	b)	Trace and explain the functional diagram of IC723 General purpose voltage regulator.	*13*	*K2*	*CO5*

PART - C (1 × 15 = 15 Marks)

16.	a)	Design and describe a Monostable multivibrator using IC741 for a pulse period of 2 μs.	*15*	*K3*	*CO6*

OR

	b) i)	Describe a RC phase shift oscillator with the sustained oscillation for|A|>=29.	*8*	*K3*	*CO6*
	ii)	Design an RC phase shift oscillator to oscillate at 100Hz. Assume R=6.5KΩ,C=0.1μF.	*7*	*K3*	*CO6*