Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 60025

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – JAN. 2026
Fourth Semester
Information Technology
U19IT407 - LINEAR INTEGRATED CIRCUITS
(Regulation 2019)

Time : Three Hours | Maximum : 100 Marks

Answer All the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q. No.	Questions	Marks	KL	CO
1.	How do you make a current mirror with magnification?	2	K1	CO1
2.	List the DC Characteristics of operational amplifier.	2	K2	CO1
3.	Name the application of inverting amplifier.	2	K1	CO2
4.	Sketch and name the op-amp integrator circuit with necessary equation.	2	K2	CO2
5.	Recall the parameter which decides the pull-in time.	2	K1	CO3
6.	Write the purpose of having a low pass filter in PLL.	2	K2	CO3
7.	Find the number of comparators required for realizing an 8 bit ADC.	2	K1	CO4
8.	List any four features of ICL8038 IC.	2	K1	CO4
9.	Classify the three different waveforms generated by ICL 8038.	2	K2	CO5
10.	Sketch and name the circuit of monolithic switching regulator.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Sketch the circuit of a widlar current mirror and derive and explain the expression for its output current. Mention the importance of current mirrors.	13	K2	CO1
		(OR)			
	b)	Compare Ideal and practical characteristics of IC741.	13	K2	CO1
12.	a)	Summarize the working of clipper and clamper circuits using op-amp.	13	K2	CO2
		(OR)			
	b)	State the importance of instrumentation amplifiers in medical industry. With neat sketch, explain the working of instrumentation amplifier. Also derive output expression.	13	K2	CO2
13.	a)	What are the internal blocks of PLL? Explain the operation of basic PLL and discuss any applications in details.	13	K2	CO3
		(OR)			
	b)	Illustrate the function of analog multiplier using emitter coupled transistor pair and discuss the construction of Gilbert multiplier cell in detail.	13	K2	CO3
14.	a)	Explain the operation of flash type A/D converter with neat sketch.	13	K2	CO4
		(OR)			
	b)	Illustrate the working of voltage and current mode R-2R Ladder type D/A converters with suitable expressions.	13	K2	CO4
15.	a)	Develop the basic principle of function generator. Draw the schematic of ICL 8038 function generator and discuss its features.	13	K3	CO5
		(OR)			
	b)	Explain the role of IC723 as low voltage and high voltage regulator with appropriate circuits and expressions.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Illustrate the working of successive approximation type A/D converter with a neat diagram.	15	K2	CO4
		(OR)			
	b)	Construct II order Butterworth active band pass filters with a lower cut off frequency of 200 Hz and higher cut off frequency of 1 KHz.	15	K3	CO1