G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.

UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.
(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc., ELECTRONICS

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
IV	PART - III	CORE	U21EL404	LINEAR INTEGRATED CIRCUITS

Date & Session: 23.04.2025/FN   **Time :3 hours**   **Maximum: 75 Marks**

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer ALL Questions.
CO1	K1	1.	The ideal op amp has ____ output resistance. a) Infinite b) Finite c) Zero d) Low
CO1	K2	2.	Shifter is also called as. a) Current mirror b) Constant current bias c) Amplifiers d) Level Translator
CO2	K1	3.	_____ is called as trans conductance amplifier. a) I to V Converter b) V to I Converter c) V to F Converter d) F to V Converter
CO2	K2	4.	An Inverting amplifier produces ____ phase shift. a) 90° b) 270° c) 180° d) 45°
CO3	K1	5.	Low Pass filter allows _____ frequency signal. a) High b) Very high c) Low d) Medium
CO3	K2	6.	Which of the following filter is also called as delay equalizers. a) LPF b) HPF c) All Pass Filter d) All Pass Filter
CO4	K1	7.	The Comparator is a. a) ADC b) DAC c) VIC d) VFC
CO4	K2	8.	Zero crossing detector is a _____ wave to _____ converter. a) Square, Sine b) Sine, Cosine c) Sine, Square d) Sine, Sawtooth
CO5	K1	9.	Free running multivibrator is also called as. a) Stable multivibrator b) Voltage control oscillator c) Square wave oscillator d) Pulse stretcher
CO5	K2	10.	At which state the phase-locked loop tracks any change in input frequency? a) Free running state b) Capture state c) Phase-locked state d) Ideal state

Course Outcome	Bloom's K-level	Q. No.	SECTION – B (5 X 5 = 25 Marks) Answer **ALL** Questions choosing either (a) or (b)
CO1	K3	11a.	Enumerate the characteristics of an ideal op-amp.
			(OR)
CO1	K3	11b.	Draw and explain the functional block diagram of IC 741.
CO2	K3	12a.	Describe the open and closed loop configuration of the op-amp.
			(OR)
CO2	K3	12b.	Discuss the application of the V to I converter and the I to V converter.
CO3	K4	13a.	Draw the sample and hold circuit and elucidate its operations.
			(OR)
CO3	K4	13b.	Determine the frequency response of the high pass filter with a neat diagram.
CO4	K4	14a.	What is a comparator? Explain its working principle with a circuit diagram.
			(OR)
CO4	K4	14b.	Sketch the Wien bridge oscillator circuit and derive the expression for resonant frequency.
CO5	K5	15a.	What is an Astable Multivibrator and how does it work?
			(OR)
CO5	K5	15b.	Evaluate the functional block diagram of a 555 timer.

Course Outcome	Bloom's K-level	Q. No.	SECTION – C (5 X 8 = 40 Marks) Answer **ALL** Questions choosing either (a) or (b)
CO1	K3	16a.	What is a level translator in an Op-Amp? Why is it necessary for proper circuit operation?
			(OR)
CO1	K3	16b.	Identify the differences between the constant current bias and current mirror.
CO2	K4	17a.	Explain the inverting and non-inverting summing amplifier and derive the expression for output voltage.
			(OR)
CO2	K4	17b.	Discuss the operation of op-amp differentiator and integrator circuits.
CO3	K4	18a.	Explain the working of a band-pass filter. How does it differ from low-pass and high-pass filters?
			(OR)
CO3	K4	18b.	Provide a detailed study on the frequency response of narrow and wide bandpass filters.
CO4	K5	19a.	Draw and analyze the operation of the square wave generator.
			(OR)
CO4	K5	19b.	Examine the operation of a triangular wave generator with a neat diagram.
CO5	K5	20a.	Draw and explain the block diagram of a Phase-Locked Loop (PLL). Describe the role of each functional block.
			(OR)
CO5	K5	20b.	Sketch the block diagram of IC566 VCO and assess its operation.