Code No:**20EC5T01**

R20

III B. TECH I SEMESTER REGULAR EXAMINATIONS, NOVEMBER - 2022
LINEAR IC APPLICATIONS
(Electronics and Communication Engineering)

Time: 3 Hours **Max. Marks:70**

Note: Answer **ONE** question from each unit **(5 ×14 = 70 Marks)**

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UNIT-I

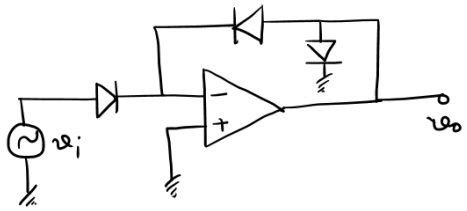
1. a) Draw and explain the circuit diagram of output stage of operational amplifier. [7M]
   b) Explain the operation and working of basic BJT current mirror circuit. [7M]

(OR)

2. a) Draw and explain the internal circuit diagram of intermediate stage of operation amplifier. [7M]
   b) Explain the working of widlar current mirror circuit with a neat sketch. [7M]

UNIT-II

3. a) Draw the circuit of inverting integrator and explain its working. [7M]
   b) Consider the following circuit and draw the output waveform. [7M]



(OR)

4. a) Draw and explain the working of op-amp based voltage to current converter. [7M]
   b) Implement the square wave generating circuit using op-amp. [7M]

UNIT-III

5. a) Draw the circuit diagram of second order Butterworth low pass filter using operational amplifier. [7M]
   b) Explain the working and operation of RC phase shift oscillator. [7M]

(OR)

6. a) Draw the circuit diagram of first order Butterworth high pass filter using operational amplifier. [7M]
   b) Draw the circuit diagram of sample and hold circuit and explain its working. [7M]
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UNIT-IV

7.	a)	Draw the pin diagram of 555 timer and implement an astable multivibrator. Also, find the duty cycle.	[7M]
	b)	Implement a frequency multiplier using PLL.	[7M]

(OR)

8.	a)	Explain the working of voltage-controlled oscillator.	[7M]
	b)	Implement a missing pulse detector using monostable mode.	[7M]

UNIT-V

9.	a)	Explain the working and operation of successive approximation type ADC.	[7M]
	b)	Explain about binary weighted 3-bit DAC with a neat sketch and plot transfer characteristics.	[7M]

(OR)

10.	a)	Explain the working of dual-slop ADC.	[7M]
	b)	List DAC/ADC specifications and explain.	[7M]

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