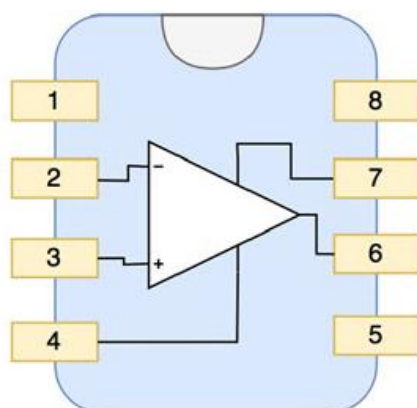


THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Fourth Semester**Electrical and Electronics Engineering***EE3402 - Linear Integrated Circuits***Regulations - 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Classify the different types of IC's.	L2	1	2
2.	Indicate the advantages of integrated circuits over discrete component circuit.	L2	1	2
3.	Mention any four important characteristics of ideal operational amplifier.	L2	2	2
4.	Define Virtual ground property of an op amp.	L1	2	2
5.	Recall the major requirements for an instrumentation amplifier.	L1	3	2
6.	List any four waveform generators using Op-Amp.	L1	3	2
7.	Identify the function of reset pin in 555 timer.	L2	4	2
8.	Give the applications of analog multipliers.	L1	4	2
9.	Compare Linear regulator and Switched mode regulator.	L2	5	2
10.	Give the need for current limiting in voltage regulators.	L1	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Interpret the steps involved in the process of fabricating the transistor using monolithic IC technology.	L2	1	16
	Or			
	b With neat illustrations explain the various steps involved in the fabrication of FET.	L2	1	16
12.	a i Explain the effects of input bias current, input offset current and input offset voltage in the output voltage of opamp.	L2	2	10
	ii Recall the functions of the terminals of a IC741 Op-Amp shown below in fig.1	L2	2	6

**Fig. 1: IC741 opamp****Or**

- | | | | | | |
|---|----|--|----|---|----|
| b | i | Illustrate the frequency response of the practical op amp with magnitude plot and phase plot. | L2 | 2 | 10 |
| | ii | Represent that the output V_0 is equal to inverted sum of input voltages V_a , V_b and V_c . | L2 | 2 | 6 |

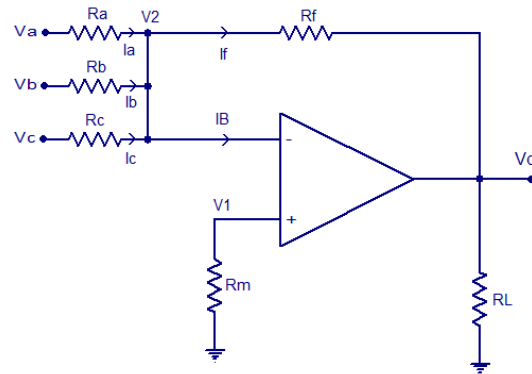


Fig.2: Summing Amplifier

- | | | | | | | |
|-----|---|----|--|----|---|----|
| 13. | a | i | Explain the operation of Instrumentation Amplifier from three amplifier configuration and find its output voltage. | L2 | 3 | 8 |
| | | ii | Construct the circuit and explain the function of a first order Butterworth low-pass filter having upper cut-off frequency of 2 kHz. | L2 | 3 | 8 |
| | | | Or | | | |
| | b | i | Interpret the working of negative Clipper circuit by using Op-amp. | L2 | 3 | 8 |
| | | ii | Design a Successive Approximation type ADC to convert the analog input voltage V_a to 8-bit digital output. | L2 | 3 | 8 |
| 14. | a | | Examine an astable multivibrator using 555 timer to generate the output signal with frequency 2 KHz and duty cycle of 75% with neat diagram. | L4 | 4 | 16 |
| | | | Or | | | |
| | b | | Analyze the function of IC 565 Phase locked loop for any two applications. | L4 | 4 | 16 |
| 15. | a | | Define Voltage regulators and recall the operation of LM 317 three terminal adjustable voltage regulators using opamp. | L1 | 5 | 16 |
| | | | Or | | | |
| | b | | Represent the basic principle of ICL 8038 function generator and discuss its features. | L1 | 5 | 16 |