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Code No. : 15337 S

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD*Accredited by NAAC with A++ Grade***B.E. (E.E.E.) V-Semester Supplementary Examinations, July-2022****Linear Integrated Circuits and Applications**

Time: 3 hours

Max. Marks: 60

*Note: Answer all questions from Part-A and any FIVE from Part-B***Part-A (10 × 2 = 20 Marks)**

Q. No.	Stem of the question	M	L	CO	PO
1.	Define CMRR and give its ideal and practical values.	2	1	1	1
2.	List out the ideal characteristics of operational amplifier.	2	1	1	1
3.	Discuss the important features of Instrumentation Amplifier.	2	2	2	1
4.	Draw the schematic diagram of an analog multiplier using logarithmic amplifier.	2	2	2	1
5.	Write the expressions for (i) Lock in range (ii) Capture range.	2	2	3	1
6.	Summarize the applications of PLL.	2	2	3	1
7.	Compare shunt and series voltage regulators	2	2	4	1
8.	Classify voltage regulation?	2	2	4	1
9.	Construct an all-pass filter and Notch Filter?	2	3	5	1
10.	Compare the ideal frequency response graphs for low-pass, high-pass and band-pass filters.	2	2	5	1
Part-B (5×8 = 40 Marks)					
11. a)	Illustrate the most important parameters of an operational amplifier. What are their ideal values and practical values?	5	2	1	1
b)	Explain the need for frequency compensation? Discuss about pole-zero compensation.	3	1	1	1
12. a)	Write the main advantage of comparator based triangular wave generator over free running A stable multivibrator based circuit?	4	4	2	1
b)	What is an instrumentation amplifier? Explain the working of three op-amp instrumentation amplifier. Give its application	4	1	2	1
13. a)	Develop the transfer characteristics of PLL.	4	3	3	1
b)	Organize the working of Voltage Controlled Oscillator with a neat block diagram. Give its typical connection diagram and its output waveforms.	4	3	3	1



14. a)	Examine the working of Series voltage regulators with suitable circuit diagram.	5	4	4	1
b)	Compare the differences between fixed voltage regulators and current voltage regulators.	3	2	4	1
15. a)	Contrast the merits of active filter employing Op-amps? Draw the schematic of a band pass filter and explain the working.	4	2	5	1
b)	Construct a second order butter worth low pass filter having an upper cut off frequency of 2 KHz.	4	3	5	1,2
16. a)	Identify the application of op-amp as (1) integrator (2) differentiator.	4	3	1	1
b)	Analyze the operation of antilog amplifier using Op-Amp.	4	4	2	1
17.	Answer any <i>two</i> of the following:				
a)	Draw the voltage to frequency converter circuit and explain its operation.	4	2	3	1
b)	Choose appropriate circuit, write the working of shunt voltage regulators.	4	1	4	1
c)	Construct a 1st order LPF and HPF and draw its output response.	4	3	5	1

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	36.25%
iii)	Blooms Taxonomy Level – 3 & 4	43.75%
