Hall Ticket Number:

Code No. : 16301

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (EEE: CBCS) VI-Semester Main Examinations, May-2019

Linear Integrated Circuits

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

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Q. No.	Stem of the question	M	L	CO	PO
	Part-A (10 × 2 = 20 Marks)				
1.	Draw the Circuit of an amplifier having gain of -10 and input resistance equal to 1kΩ .	2	3	1	1
2.	Define Slew rate and what causes the Slew rate	2	1	1	1
3.	Calculate the values of V_{UT} and V_{LT} for Schmitt Trigger circuit, where R_2=100Ω, R_1=50KΩ, V_{ref} = 0V, V_i= 1 V_{PP} (peak-to-peak) sine wave and saturation voltage V_{sat} = ±14V	2	2	2	2
4.	Draw the circuit diagram of Voltage to Current converter.	2	3	1	1
5.	An 8bit DAC has final out put reading of the 5.55V with input of 1111, find the resolution and output voltage.	2	5	3	2
6.	List important features of 555 Timer.	2	1	2	1
7.	What is a voltage regulator and how many types of voltage regulators are there, what are they?	2	1	1	1
8.	Draw a fixed voltage regulator circuit and state its operations.	2	4	1	1
9.	List out the advantages of Switched capacitor filter	2	2	1	1
10.	Draw the schematic of a second order High-pass filter and sketch the frequency response.	2	4	1	1
	Part-B (5 × 10 = 50 Marks)				
11. a)	Explain the frequency compensation techniques of an Op-Amp.	5	3	1	1
b)	With schematic of differential amplifier, describe the operation of operational amplifier.	5	4	1	1
12. a)	With neat figures describe the circuit using OpAmps on the operation of (i) zero-crossing detector, (ii) clipper and clamper circuits.	5	3	2	1
b)	Design a Mono stable multivibrator for 3ms pulse width.	5	4	2	2
13. a)	Design mono stable multivibrator using 555 timer to produce a pulse width of100 m sec.	5	5	3	3
b)	Describe the operation of dual slope A/D converter with necessary diagrams. Give some of its advantages & disadvantages.	5	4	3	3

Contd…2

14. a)	Describe the four major components of switching regulators in detail	6	4	4	1
b)	Explain the working operation of fixed voltage regulator with diagram	4	2	4	1
15. a)	Explain the operation of 2nd order band reject filter along with circuit diagram.	5	4	4	2
b)	Write the steps involved in designing Low Pass Filter and design a second-order low pass filter at a high cut-off frequency of 1KHz.	5	6	4	2
16. a)	Describe the working operation of Current to Voltage converter using Operational Amplifier.	5	4	2	1
b)	Construct a precision full wave rectifier with operational amplifier and describe its operation.	5	3	3	1
17. **Answer any *two* of the following:**					
a)	Draw the block diagram of PLL and explain importance of each block	5	4	1	1
b)	Compare switch-mode regulators to linear regulators	5	3	2	1
c)	Explain the operation of Narrow band pass filter with a neat diagram.	5	4	3	1

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

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	48
2	Knowledge on application and analysis (Level-3 & 4)	42
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	10

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