

<b>5E3102</b>	Roll No. : _____	Total Printed Pages : <b>3</b>
	<b>5E3102</b>	
<b>B. Tech. (Sem. V) (Main/Back) Examination, December - 2013</b> <b>Electronics &amp; Communication Engg.</b> <b>5EC2 Linear Integrated Circuits</b>		

Time : 3 Hours]

[Total Marks : 80

[Min. Passing Marks : 24

*Attempt any five questions. Selecting one question from each unit  
 All questions carry equal marks. Schematic diagrams must be  
 shown wherever necessary. Any data you feel missing suitably  
 be assumed and stated clearly. Units of quantities used /  
 calculated must be stated clearly.*

Use of following supporting material is permitted during examination.  
 (Mentioned in form No. 205)

1. \_\_\_\_\_ **NIL** \_\_\_\_\_ 2. \_\_\_\_\_ **NIL** \_\_\_\_\_

### UNIT - I

- 1 Write down the characteristics of ideal op-amp. Also explain following parameters :  
 SVRR, CMRR, Slew Rate, Gain B.W. product. 8
- 2 Draw and explain the working of comparator and adder circuit using op-amp. 8

OR

- 1 Draw the schematic diagram of inverting mode voltage shunt feedback amplifier and derive the closed loop voltage gain, Input resistance at feedback, output resistance and bandwidth at feedback. 16



UNIT - II

- 1 Draw and explain the frequency to voltage converter by using suitable diagram.

10

- 2 Design a wein bridge oscillator circuit using op-amp 741 for  $f_o = 965$  Hz.

6

OR

- 1 What is an instrumentation amplifier ? List all application for this.

8

- 2 Derive the frequency of oscillation for triangular wave generator, also explain its working principle by using suitable diagram.

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UNIT - III

- 1 Design a high pass filter at a cut off frequency of 1 kHz with pass band gain of 2. Also plot its frequency response.

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- 2 Draw and explain with suitable diagram wide band pass butterworth filter.

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OR

- 1 The cut off frequency of first order LPF is 2 kHz. Convert this LPF to have a cut off freq. of 3 kHz by using frequency scaling.

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- 2 Write down a short note on "Chebyshev filter design."

8



- 1 Give the detail description of following : (any two)
- (a) Tracking filter
  - (b) LM565 as an FSK demodulator.
  - (c) Signal synchronize
  - (d) Block diagram and operation of PLL.

8×2=16

## UNIT - V

- 1 Briefly explain the difference between two operating modes of the 555 timer. Also explain the working principle of monostable multivibrator.
- 2 What is the working principle of voltage regulators ? Also list the specification of positive and negative voltage regulators.

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## OR

- 1 Design an astable multivibrator having an output frequency of 10 kHz with duty cycle of 25%.
- 2 Write short note on Schmitt trigger, also compare its performance with zero crossing detector.

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