Roll No. ..... Total Pages : 03

July-22-00263

B. Tech. EXAMINATION, 2022

Semester VI

LINEAR INTEGRATED CIRCUITS

EC-403

Time : 3 Hours *Maximum Marks : 60*

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. What is an OP-AMP ? Give the characteristics and equivalent circuit of a ideal OP-AMP. **10**

2. Draw and explain the inverting and non-inverting amplifier. **10**

Section B

3. What is the limitation of an ordinary op-amp differentiator ? Draw and explain the circuit of a practical differentiator that will eliminate these limitations. **10**

4. Design a wide band reject filter having f_h = 400 Hz and f_l = 2 kHz having pass band gain as 2. **10**

Section C

5. Draw the characteristics of an ideal comparator. List the different type of comparators. Explain how a non-symmetrical square wave can be obtained. **10**

6. Write a short note on Voltage to current converter. **10**

Section D

7. Draw the circuit of a PLL AM detector and explain its operation. **10**

8. Explain FSK circuit using OP-AMP and analog multiplier. **10**

(Compulsory Question)

9. Answer the following : **2×10=20**

   (a) List six characteristics of an ideal op-amp.

   (b) What is a practical op-amp ? Draw its equivalent circuit.

   (c) Classify the oscillators.

   (d) What do you mean by Regenerative Comparator ?

   (e) Define slew rate and its effect.

   (f) Give the classification of filters.

   (g) What is the roll off rate of a first order filter ?

   (h) List the basic building block of PLL.

   (i) Define CMRR.

   (j) Give the characteristics of Chebyshev filter.