D 27079 (Pages : 2) Name.....

Reg. No.....

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2006

EC 04 503—LINEAR INTEGRATED CIRCUITS

(2004 admissions)

Time : Three Hours **Maximum** : 100 Marks

Answer **all** *questions.*

1. (a) Explain the practical considerations of an Op-Amp.
   (b) Explain the differences between Op-Amp differentiator and Op-Amp integrator.
   (c) Explain the characteristics of Butterworth filter.
   (d) What is an all pass filter ? Write its characteristics.
   (e) Define and explain the parameters of data converters.
   (f) Draw the functional diagram of LM723 and explain.
   (g) Define and explain lock range and capture range.
   (h) Enumerate and explain the potential applications of 566.

(8 × 5 = 40 marks)

2. (a) (i) Draw a neat block diagram and equivalent circuit of Op-Amp and explain them. (8 marks)

   (ii) Draw Op-Amp log amplifier and explain. Derive an expression for V_o. (7 marks)

Or

(b) Explain the following Op-Amp circuits in detail :—

(i) Voltage comparator. (ii) Schmitt trigger.
(iii) I-V converter. (iv) Summer.
(v) Subtractor.

(4 + 4 + 4 + 3 = 15 marks)

3. (a) (i) Explain in detail the characteristics of Chebyshev filters. (7 marks)

   (ii) Give an account on "Delyiannis-Friend band pass filter". (8 marks)

Or

(b) (i) Explain the realination of various types of second order LCR resonators. (7 marks)

(ii) Explain the advantages of "switched capacitor filter". (8 marks)

4. (a) (i) Draw a neat sketch of simplest DAC circuit and explain its principle. (7 marks)

   (ii) Write a technical note on "Bipolar DAC". (8 marks)

Or

Turn over

(b) (i) Differentiate fixed regulator from adjustable regulator. (7 marks)

(ii) Explain the design aspects of any *one* regulator with an example. (8 marks)

5. (a) (i) Explain in detail the application of PLL as frequency translator and tracking filter. (7 marks)

(ii) Draw a neat block diagram of VCO and explain it. (8 marks)

Or

(b) Write short notes on :

(i) Monostable multivibrator using 555 IC. (7 marks)

(ii) Operation of IC 566. (8 marks)

[4 × 15 = 60 marks]