

FACULTY OF ENGINEERING
B.E. 3/4 (E & EE) I Semester (Main) Examination, December 2011
LINEAR INTEGRATED CIRCUITS

Time : 3 Hours]

[Max. Marks : 75

Note : Answer all questions from Part A.
Answer any five questions from Part B.

PART – A

(25 Marks)



1. What is the necessity of providing off set balancing for the operational amplifier ? 2
2. Draw the circuit of current to voltage converter. 2
3. Write the applications of peak detector. 2
4. Compare comparator and Schmitt trigger. 3
5. Define capture range and lock in range for PLL. 2
6. What are the conditions to produce oscillations by an oscillator ? 2
7. Differentiate series voltage regulator and shunt voltage regulator. 2
8. Differentiate fixed voltage regulator and switching voltage regulator. 2
9. Write the applications of low pass, high pass, band pass, band reject and notch filter. 5
10. Draw the circuit for balanced modulator /demodulator. 3

PART – B

(50 Marks)

11. a) Explain different offset balancing techniques for an Op-Amp. 5
b) Differentiate integrator and differentiator using Op-Amp. 5
12. What is instrumentation amplifier ? Explain the principle of operation of instrumentation amplifier. Also give features with advantages and disadvantages. Also give applications. 10
13. What is quadrature oscillator ? Explain the principle of operation of quadrature oscillator. Also derive the conditions of frequency of oscillations with its advantages and disadvantages. 10

14. a) Explain the current sensing and current feedback protection schemes for voltage regulator. 5
- b) Explain dual tracking voltage regulators. 5
15. a) What are the advantages of active filters over passive filters ? 5
- b) Explain universal filter. 5
16. a) Explain the operation of switched capacitor filter. 5
- b) Design a wide-band pass filter having $f_l = 400$ Hz, $f_h = 2$ kHz and pass band gain of 4. Find 'Q' of the filter. 5
17. Write short note on : 10
- a) 555 timer
- b) State variable filter.