

**FACULTY OF ENGINEERING**

**B.E. 3/4 (EE/ Inst.) I-Semester (New)(Main) Examination,  
November/December 2012**

**Subject : Linear Integrated Circuits**

**Time : 3 Hours**

**Max. Marks: 75**

**Note: Answer all questions of Part - A and answer any five questions from Part-B.**

**PART – A (25 Marks)**

1. Write the characteristics of Ideal OP-AMP. (2)
2. Write the applications of voltage to current converter and current to voltage converter. (2)
3. Write the applications of zero crossing detector. (2)
4. Write the advantages and disadvantages of Instrumentation Amplifier. (3)
5. Write the conditions for sustained oscillations? (2)
6. Write the advantages of D/A converters over A/D converters. (3)
7. Classify the voltage regulators. (3)
8. Explain the principle of obtaining a regulated power supply. (3)
9. Write the frequency transformation formulas for converting : (3)
  - (i) Low pass to low pass
  - (ii) Low pass to High pass
  - (iii) Low pass to Band pass
  - (iv) Low pass to Band stop
10. Draw the circuit diagram of Balanced modulator and Balanced demodulator. (2)

**PART – B (5x10=50 Marks)**

11. Explain the principle of basic differentiator and also practical differentiator. Also explain its frequency response. (10)
- 12.(a) Explain the principle of operation of Schmitt trigger. (5)
- (b) Explain the principle of sample and Hold circuit. (5)
13. Explain the principle of free running multivibrator. Also derive the expression for frequency of oscillations. (10)
- 14.(a) Explain different protections in voltage regulators. (5)
- (b) Compare series voltage regulators and shunt voltage regulators in terms of operation and performance. (5)
15. Explain the principle of narrow band reject filter. Also derive the expression for cutoff frequency and band width. (10)
- 16.(a) Draw the ideal characteristics of all types of filters. (5)
- (b) Draw and explain the functional diagram of a 555 timer. (5)
- 17.(a) Explain peak detector. (5)
- (b) Explain the frequency compensation techniques. (5)