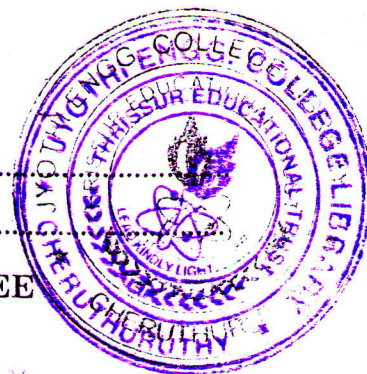


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Name.....

Reg. No.....



**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE  
EXAMINATION, DECEMBER 2007**

**EC 04 503—LINEAR INTEGRATED CIRCUITS**

**(2004 Admissions)**

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

- I. (a) What is an OP-amp Buffer ? Explain its characteristics.  
(b) Draw a neat sketch of OP-amp comparator and explain.  
(c) Explain the characteristics of Sallen-key LPF.  
(d) Draw a neat sketch of Twin Tee notch filter and explain.  
(e) Differentiate Linear voltage regulator from switching regulator.  
(f) Explain the protection mechanisms for voltage regulators.  
(g) Explain the operation of first order PLL with a neat sketch.  
(h) Explain the potential applications of Timer IC 555.  
(8 × 5 = 40 marks)
- II. (a) (i) Draw OP-amp V-I and V-V converters. Explain their principle in detail. (7 marks)  
(ii) Draw OP-amp Schmitt trigger and explain its principle of operation in detail. (8 marks)  
Or  
(b) Draw OP-amp phase shift and Wienbridge oscillators. Explain their principle of operation. Derive the condition for oscillation.  
(15 marks)
- III. (a) (i) Differentiate Butterworth filter characteristics from Chebyshev filter characteristics. (7 marks)  
(ii) Design OP-amp LPF with  $f_c = 2$  kHz and pass band gain of 4. (8 marks)  
Or  
(b) (i) Give an account on switched capacitor filter. (7 marks)  
(ii) Explain the principle of OP-amp second order BPF and BSF with neat circuit diagrams. (8 marks)
- IV. (a) (i) Draw a neat circuit diagram of R-2R ladder DAC and explain its principle in detail. (7 marks)  
(ii) Draw a neat sketch of successive approximation ADC and explain its operation in detail. (8 marks)

Or

Turn over

- (b) (i) Differentiate fixed voltage regulator from advisable voltage regulator. (7 marks)
- (ii) Draw the functional diagram of LM 723 and explain. (8 marks)
- V. (a) (i) Explain the application of PLL as frequency translator and AM detector with neat sketches. (7 marks)
- (ii) Explain the block diagram of VCO in detail. (8 marks)
- Or
- (b) Write short notes on :
- 1 Design of A stable multivibrator using Timer IC 555. (7 marks)
- 2 Functional diagram of IC 566. (8 marks)
- [4 × 15 = 60 marks]