

R07

Code No: 07A50402

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B. Tech III Year I Semester Examinations, November/December-2013

LINEAR IC APPLICATIONS

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 80

Answer any five questions  
All questions carry equal marks

- 1.a) What are the ideal characteristics of op-amp?  
b) Define the following terms with respect to Op-amp:  
(i) input offset voltage (ii) output offset current  
(iii) CMRR (iv) Slew Rate  
c) Why frequency Compensation is required in op-amp? [4+8+4]
- 2.a) Draw the block diagram of Logarithmic Amplifier and explain the function of each block.  
b) Explain the how the op-amp is used to amplify the invert signal? Derive the equation for its gain. [8+8]
- 3.a) Explain how to generate a square wave using op-amp? Explain its working with neat diagrams.  
b) Draw the functional diagram of 555 timer and explain it. [8+8]
- 4.a) What is the significance of VCO in PLL?  
b) Define the Lock range and Capture range.  
c) What are the Applications of PLL? Explain any one them in detail. [4+4+8]
- 5.a) Compare Active and passive Filters.  
b) Design a Second order High pass filter with cutoff frequency of 2kHz. [8+8]
- 6.a) Explain the working of differential amplifier with neat circuit diagram.  
b) Why dual input unbalanced output is required in differential amplifiers. [5+6+5]
- 7.a) Draw the circuit diagram of Sample and Hold circuit and explain its working.  
b) Draw the circuit diagram of Ladder type DAC and explain its working with suitable diagram. [8+8]
8. Write a short notes on the following:  
a) Analog Multiplexers  
b) IC 1496 Balanced modulator [8+8]

\*\*\*\*\*