

Code No: **R31043**

R10

Set No. 1

III B.Tech I Semester Supplementary Examinations, May-2017

LINER IC APPLICATIONS
(Common to ECE,EIE &ECC)

Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) Draw and explain ideal and practical voltage transfer curves of OP-AMP. [6]
- b) Discuss the differences between the differential amplifiers used in the first two stages of OP-AMP. [5]
- c) Compare open-loop and closed loop configuration of OP-AMP. [4]
- 2 Define the following dc characteristics of operational amplifier [15]
(i). Input bias current.
(ii). Input offset current.
(iii). Input offset voltage.
Suggest a suitable compensation technique for each of the above.
- 3 Discuss the following application of op-amp [15]
(i) Current to voltage converter.
(ii) Schmitt trigger.
- 4 a) Explain the operation of antilog amplifier using Op-Amp. [7]
- b) What is the main advantage of comparator based triangular wave generator over free running Astable multivibrator based circuit? [8]
- 5 a) Explain the operation of triangular wave generator and derive the expression for amplitude and frequency of oscillations? [10]
- b) Design a 1st order low pass filter at a cut-off frequency of 400Hz and a pass band gain of 2? [5]
- 6 a) Define lock range, capture range and pull-in-time. [4]
- b) Drive expression for lock range of PLL. [6]
- c) Explain the transfer characteristics of PLL. [5]
- 7 a) Explain the operation of R2R resistor DAC with the help of relevant diagrams and sketches. [10]
- b) Compare flash, dual slope and SAR types of ADC. [5]
- 8 a) Explain application of Gilbert cell multiplier as balanced modulator. [8]
- b) Explain sample and hold amplifier. [7]

