

Code No: **R31026**

R10

Set No. 1

III B.Tech I Semester Supplementary Examinations, October/November-2017

LINEAR & DIGITAL IC APPLICATIONS

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) Discuss the dc analysis of Dual input- balanced output differential amplifier. Specify other types of differential amplifier configurations. Compare and contrast these configurations
b) Describe the importance of active load in opamps.
- 2 a) Define and discuss the effect of the following parameters on the performance of operational amplifiers:
(i) Input offset voltage ii) CMRR (iii) PSRR and (iv) Slew rate
b) Explain briefly about external frequency compensation technique.
- 3 a) Draw and explain the working of Logarithmic amplifier.
b) With suitable circuit diagram explain the operation of a triangular wave generator using a comparator and a integrator.
- 4 a) Draw the circuit of Schmitt trigger using 555 timer and explain its operation.
b) Explain how phase locked loop is used as a frequency translator and AM demodulator.
- 5 a) Draw the first order lowpass Butterworth filter and analyze the same by deriving the gain and phase angle equations.
b) Draw the circuit and explain the operation of a successive approximation type analog to digital converter
- 6 a) Design a 32 to 1 multiplexer using four 74×151 multiplexers and 74×139 decoder.
b) Explain the differences between multiplexers and Demultiplexers.
- 7 a) Design a modulo-100 counter using two 74×163 binary counters?
b) Design an 8-bit parallel-in and serial-out shift register? Explain the operation of the shift register with the help of timing waveforms?
- 8 a) Draw the block diagram and explain the function of PLA. Give the comparisons between PROM, PLA & PAL.
b) Write briefly on Static bi-polar RAM cell and explain how does it differ from a dynamic RAM cell.

