

Roll No. _____

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(Electronics Engg.) (2012 Batch) (Sem.-5)
B.Tech.(ECE)/(Electronics & Computer Engg.)/(ETE)
(2011 Onwards)**

LINEAR INTEGRATED CIRCUIT

Subject Code : BTEC-503

Paper ID : [A2105]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

- 1. Write short notes on :**

- Define Current Mirror Circuit.
- Differentiate between Inverting and Non Inverting Op Amp.
- Draw an electrical equivalent circuit of an Op Amp.
- Define Temperature and supply voltage parameters and write their values for IC 741.
- List any four features of Instrumentation Amplifier.
- "A switching voltage regulator has efficiency higher than other regulators"*
Comment.
- Why is the Level Translator circuit used in differential amplifier stages?
- Draw the frequency response curve of High pass filter.
- Write the significance of AC, DC and Peaking Amplifier.
- A log amplifier produces an output proportional to log of input.* How?

SECTION-B

2. Find the Q-point for the DIBO differential amplifier with $\beta = 100$, $R_c = R_E = 65k\ \Omega$, $R_{in} = 50\Omega$, $\pm V_{cc} = 15V$.
3. Analyze the circuit whose output current is a mirror image of input current with the help of suitable diagrams.
4. Draw the output waveform of ideal integrated circuit when the input is :
 - 1) Sine Wave
 - 2) Square Wave.
5. Design Phase Shift Oscillator at a cutoff frequency of 200Hz.
6. Draw the block diagram of IC-555 timer and explain its operation in monostable mode.

SECTION-C

7. List the basic building blocks of discrete PLL and explain their roles
8. Explain in detail the block diagram of Successive Approximation ADC.
9. a) Analyze Dual input balanced output amplifier when the input is a DC signal?
b) The following specifications are given for the differential amplifiers having Three op-amps: $R_4 = 3.9K\ \Omega$, $R_5 = 5K\Omega$, potentiometer, $R_1 = R_2 = 1K\Omega$ & $R_3 = 4.7K\Omega$, supply Voltages = $\pm 15V$. If R_5 is set at $3k\ \Omega$, then Calculate: Voltage gain, input resistance, Output resistance, bandwidth of differential amplifier.