

Roll No. 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech. (ECE) (Sem.-5)**  
**LINEAR INTEGRATED CIRCUITS**  
Subject Code : EC-305  
Paper ID : [A0313]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS 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 have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

**SECTION-A****1. Answer all the questions :**

- a. Explain briefly differential amplifier and draw its block diagram.
- b. Draw the pin diagram of 741 IC OP-AMP.
- c. Define slew rate. What causes it?
- d. What is CMRR? Give an ideal value for an Op-amp.
- e. Draw the inverting op-amp circuit diagram and derive its output voltage
- f. Define the terms Linearity and accuracy of A/D convertors.
- g. Explain Input and output off set voltages and currents.
- h. What is the main advantage of constant current bias over emitter bias in differential amplifiers?
- i. What is the importance of DC coupling in Op-amp internal structure?
- j. What is the use of level translator in the Op-amp internal structure?

### SECTION-B

2. Draw the circuit diagram of practical differentiator by using IC 741 and explain its operation.
3. Explain the Frequency Compensation techniques of op-amp in detail.
4. Draw the block diagram of log Amplifiers and explain its operation in detail.
5. Explain the operation of 2nd order band reject filter along with circuit diagram.
6. Draw the block diagram of PLL and explain the operation of individual blocks in detail.

### SECTION-C

7. Explain triangular wave generator. Derive frequency of oscillations by using triangular wave generator.
8. What is multivibrator? Explain its different types. Draw the block diagram of astable operations using IC 555 and derive its time constant.
9. Write short notes on following :
  - a. All-pass filter
  - b. Practical log amplifier