

**Reg. No:**

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech III Year I Semester Regular & Supplementary Examinations Nov/Dec 2019**  
**LINEAR IC APPLICATIONS**  
(EEE & ECE)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Draw the equivalent circuit diagram of Op amp and explain the voltage transfer curve. **6M**  
b Compare and contrast ideal and practical op-amp. **6M**
- OR**
- 2 a Compare different configurations of differential amplifier. **6M**  
b Explain the dual input balanced output differential amplifier with a neat circuit diagram. **6M**

**UNIT-II**

- 3 a Explain and derive slew rate and write the importance in op-amp circuits. **6M**  
b Compare the open loop and closed loop op-amp. **6M**
- OR**
- 4 a Derive the input resistance and output resistance for a voltage shunt feedback Amplifier. **6M**  
b In Non-inverting inverting feedback op-amp  $R_1 = 12K\Omega$ ,  $R_f = 120K\Omega$  and  $V_{in} = 1V$ . A load of  $25 K\Omega$  is connected to the output terminal. Calculate  $I_i$ ,  $V_o$ ,  $I_L$  and  $I_o$ . **6M**

**UNIT-III**

- 5 a Derive the expression for Current to Voltage Converter. **6M**  
b Design and explain the operation of inverting summing amplifier. **6M**
- OR**
- 6 Derive the expression for 3 input non-inverting summing amplifier with neat circuit diagram and explain. **12M**

**UNIT-IV**

- 7 a Discuss the applications of Astable multivibrator. **6M**  
b Draw the block diagram of PLL and explain its operation. **6M**
- OR**
- 8 a Explain the square wave generator with neat circuit diagram. **6M**  
b Explain the saw tooth wave generator with neat circuit diagram. **6M**

**UNIT-V**

- 9 Draw the circuit diagram of Dual Slope ADC and explain its working with neat diagrams. **12M**
- OR**
- 10 Explain in detail about R-2R DAC with a neat circuit diagram and an example. **12M**

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