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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)  
**B.Tech III Year I Semester Supplementary Examinations August-2021**  
**LINEAR IC APPLICATIONS**  
(Common to ECE & EEE)

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 Calculate the amplification factor for AC signal input in dual input balanced output differential amplifier. **12M**

**UNIT-II**

- 3 a Explain and derive slew rate and write the importance in op-amp circuits. **8M**  
b Compare the open loop and closed loop op-amp. **4M**

**OR**

- 4 a Explain voltage series feed back amplifier with Voltage gain and input resistance. **7M**  
b Explain about the op-amp non-inverting amplifier and derive the voltage gain? **5M**

**UNIT-III**

- 5 a Write the design steps of the second order low pass filter and draw its circuit **6M**  
b Design a second order low pass filter for a cutoff frequency of 100 Hz and draw the circuit diagram. **6M**

**OR**

- 6 a Design and explain the operation of inverting summing amplifier **6M**  
b The op-amp non-inverting summing circuit has the following parameters  $V_{CC}=15V$ ,  $V_{EE} = -15V$ ,  $R = R_1 = 1\text{ k}\Omega$ ,  $R_f = 2\text{ k}\Omega$ ,  $V_1 = +2\text{ V}$ ,  $V_2 = -3\text{ V}$ ,  $V_3 = +4\text{ V}$ . Determine the output voltage  $V_o$ . **6M**

**UNIT-IV**

- 7 a Draw the circuit of PLL as frequency multiplier and explain its working. **6M**  
b Explain frequency translation and FSK demodulation using 565PLL **6M**

**OR**

- 8 a What are the conditions to be satisfied by a circuit to produce oscillations? **6M**  
b Draw the block diagram of Oscillator and explain its operation. **6M**

**UNIT-V**

- 9 a Explain about counter type ADC with neat block diagram. **6M**  
b Explain about ladder type DAC. **6M**

**OR**

- 10 Draw the circuit diagram of Dual Slope ADC and explain its working with neat Sketches? **12M**

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