Code No: **19ECT407** **R19**

II B. TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS JULY - 2022
LINEAR IC APPLICATIONS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 hours Max. Marks: 60

Note: Answer **ONE** question from each unit **(5 × 12 = 60 Marks)**

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UNIT - I

1. a) Draw the circuit diagram of dual input balanced output differential amplifier. Also derive the expressions for its differential gain, input resistance and output resistance. [6M]
   b) Compare ideal and practical characteristics of IC 741 operational amplifier. [6M]

(OR)

2. a) Compare all the four configurations of differential amplifiers. [6M]
   b) Draw the Basic block diagram of Operational Amplifier and Explain about it. [6M]

UNIT – II

3. a) Draw the circuit diagram of Instrumentation amplifier and Explain about it. [6M]
   b) Compare Inverting and Non-inverting amplifiers. [6M]

(OR)

4. a) Draw the circuit diagram of basic Log amplifier and Explain about it. [6M]
   b) Design practical integrator circuit for an input frequency of 1KHz. [6M]

UNIT – III

5. a) Design 1^{st} order LPF for pass band gain of 2 and f_H=1KHz. [6M]
   b) Draw the circuit diagram of all pass filter and derive its transfer function. [6M]

(OR)

6. a) Draw the circuit diagram of 2^{nd} order HPF and explain about it. [6M]
   b) Draw the circuit diagram of Sample & Hold circuit and Explain about it. [6M]

UNIT –IV

7. a) Draw the functional diagram of IC 555 Timer and explain about it [6M]
   b) Explain about any two applications of PLL. [6M]
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(OR)

8. a) Draw the block diagram of PLL and explain about it. [6M]
   b) Design an astable multivibrator using IC 555 Timer for a frequency of 1KHz. [6M]

UNIT –V

9. a) Explain about specifications of ADC/DAC. [6M]
   b) Draw the circuit diagram of R-2R ladder DAC and explain about it. [6M]

(OR)

10. a) Draw the diagram of parallel comparator type ADC and explain about it. [6M]
    b) Draw the diagram of successive approximation ADC and explain about it. [6M]

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