

**SREE VIDYANIKETHAN ENGINEERING COLLEGE**  
 (An Autonomous Institution, Affiliated to JNTUA, Ananthapuramu)  
**II B.Tech II Semester (SVEC-16) Regular Examinations May - 2018**  
**LINEAR IC APPLICATIONS**  
**[Electronics and Communication Engineering]**

Time: 3 hours

Max. Marks: 70

**Answer One Question from each Unit**  
**All questions carry equal marks**

**UNIT-I**

- |   |    |  |     |         |
|---|----|--|-----|---------|
| 1 | a) | Show, why CMRR for an emitter coupled differential amplifier tend to infinite when it's $R_E$ tends to infinite. | CO1 | 7 Marks |
|   | b) | Explain the concept of level translator in detail.   | CO1 | 7 Marks |

**(OR)**

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|---|----|--|-----|---------|
| 2 | a) | Derive the amplifier gain from AC analysis of single input dual output differential amplifier configuration. | CO1 | 7 Marks |
|   | b) | List and explain the parameters that are important for AC applications.                                      | CO1 | 7 Marks |

**UNIT-II**

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|---|----|---|-----|---------|
| 3 | a) | What is an instrumentation amplifier? Draw a system whose gain is controlled by an adjustable resistor. | CO1 | 7 Marks |
|   | b) | Draw the circuit of a log amplifier using two op-amps and explain its operation.                        | CO3 | 7 Marks |

**(OR)**

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|---|----|--|-----|---------|
| 4 | a) | Draw and explain the circuit of a lossy integrator showing initial conditions.   | CO3 | 7 Marks |
|   | b) | Explain about generation of square wave and triangular wave forms using op-amps. | CO3 | 7 Marks |

**UNIT-III**

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|---|----|---|-----|---------|
| 5 | a) | Explain how line and load regulation is obtained in a series op-amp voltage regulator.  | CO1 | 7 Marks |
|   | b) | Draw a wide band pass active filter using op-amps and derive for its transfer function. | CO2 | 7 Marks |

**(OR)**

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|---|----|---|-----|---------|
| 6 | a) | What is a notch filter? Explain how a wide band rejection filter response is obtained.          | CO2 | 7 Marks |
|   | b) | Design a first order low pass filter for high cutoff frequency of 2kHz and pass band gain of 2. | CO2 | 7 Marks |

**UNIT-IV**

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|---|----|--|-----|---------|
| 7 | a) | Explain the functionality of following inputs in IC 555 timer.<br>i) Reset pin.      ii) Control input.      iii) Discharge pin. | CO1 | 7 Marks |
|   | b) | List and explain any two of the applications of a PLL.   | CO1 | 7 Marks |

**(OR)**

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|---|----|--|-----|---------|
| 8 | a) | Give the block diagram of IC566 VCO and explain its operation.                                 | CO1 | 7 Marks |
|   | b) | Design a square waveform generator of frequency 100Hz and duty cycle of 70% using a 555 timer. | CO1 | 7 Marks |

**UNIT-V**

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|---|----|---|-----|---------|
| 9 | a) | How many levels are possible with 3 bit DAC? What is its resolution if the output range is 0 to 5V? | CO1 | 7 Marks |
|   | b) | Explain the important specifications of A/D and D/A converters.                                     | CO1 | 7 Marks |

**(OR)**

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|----|----|---|-----|---------|
| 10 | a) | Explain the advantage and disadvantages in both weighted and R-2R ladder type of DAC. | CO1 | 6 Marks |
|    | b) | Explain the operation of a Dual-slope ADC.  | CO1 | 8 Marks |

