Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination – June – 2017**

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| **Code :** | **14EC2008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **LINEAR INTEGRATED CIRCUITS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | With necessary circuit diagrams prove that the operational amplifier can be used as a: (i)Differentiator (ii)Integrator | CO1 | 15 |
| b. | Design an op-amp circuit to obtain the difference between two voltages V1, V2 | CO1 | 5 |
| (OR) | | | | |
| 2. |  | Explain the following electrical parameters related to ideal op-amp:  a.Input bias current b.Input offset current  c.Input offset voltage d.Thermal drift e.Slew rate | CO1 | 20 |
| 3. | a. | With the help of a block diagram and waveforms, Explain how OPAMP is used as an Astable multivibrator. Find the frequency of oscillation | CO1 | 15 |
| b. | Explain the working of clamper. | CO1 | 5 |
| (OR) | | | | |
| 4. |  | Draw and explain Wien bridge oscillator and derive the expression for frequency of oscillation. | CO1 | 20 |
| 5. |  | Derive the transfer function of general second order Active Filter.Also derive expression of second order Low pass filter transfer function.` | CO1 | 20 |
| (OR) | | | | |
| 6. |  | Give the functional description of a 555 timer and also explain how it works as an astable multivibrator. Derive the value of T | CO2 | 20 |
| 7. | a. | Explain the characteristic features of ADC and DAC. | CO2 | 5 |
| b. | With a neat circuit diagram explain the methods used in weighted resistor, R-2R digital to analog converter. | CO2 | 15 |
| (OR) | | | | |
| 8. |  | Explain the functional modules of a Phase locked loops with the necessary diagrams. Explain how frequency multiplication is achieved using PLL. | CO2 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | With neat sketch explain the fabrication steps to convert the circuit into monolithic IC | CO3 | 20 |

ALL THE BEST