Course Code: **23EC6E05**

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

**(AUTONOMOUS)**

***III- B.Tech II-Semester Regular Examinations (BR23), April/May -2026***

**LINEAR AND DIGITAL IC APPLICATIONS (EEE)**

Time: 3 hours Max. Marks: 70

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*Question Paper consists of Part-A and Part-B*

*Answer **ALL** the question in **Part-A and Part-B***

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PART–A (10X2 = 20M)

| | | Marks | CO | BL |
|---|---|---|---|---|
| 1. a) | List out the Idel and Practical characteristics of Op-Amp | (2M) | CO1 | BL1 |
| b) | Mention the applications of Voltage regulator | (2M) | CO1 | BL1 |
| c) | Define: Active Filters and mention its types | (2M) | CO2 | BL1 |
| d) | Draw the Pin diagram of IC 555 Timer | (2M) | CO2 | BL2 |
| e) | Compare ADC and DAC | (2M) | CO3 | BL2 |
| f) | Which is the fastest ADC and why? | (2M) | CO3 | BL2 |
| g) | Explain about Encoder and Decoder | (2M) | CO4 | BL2 |
| h) | Mention the applications of Multiplexer and Demultiplexer | (2M) | CO4 | BL1 |
| i) | Define: Flip-flops and mention its types | (2M) | CO5 | BL1 |
| j) | Compare ROM and RAM | (2M) | CO5 | BL2 |

PART–B (5X10 = 50M)

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|---|---|---|---|---|
| 2a. | Explain any two DC and AC Characteristics of the Operational Amplifier. | 10(M) | CO1 | BL2 |
| | (OR) | | | |
| 3a. | Explain the with the block diagram of three terminal voltage regulator and mention some features of 723 Regulator. | 10(M) | CO1 | BL2 |
| 4a. | Explain functional diagram of monostable multivibrator using IC 555 timer and derive the frequency of oscillation. | 10(M) | CO2 | BL4 |
| | (OR) | | | |
| 5a. | Draw the block diagram of 565 PLL IC and explain each block in detail. | 10(M) | CO2 | BL3 |
| 6a. | Draw the circuit of a ladder type (R-2R) DAC for 4 bits and derive expression for the output voltage. | 10(M) | CO3 | BL4 |
| | (OR) | | | |
| 7a. | Explain the operation of dual slope type of ADC with a neat diagram and also write its advantages. | 10(M) | CO3 | BL3 |

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|---|---|---|---|---|
| 8a. | Explain Binary to gray code converter. | 5(M) | CO4 | BL3 |
| b. | Explain Encoder with a logic circuit. | 5(M) | CO4 | BL3 |
| | (OR) | | | |
| 9a. | Explain Parallel Binary Adder/Subtractor with a neat sketch. | 5(M) | CO4 | BL3 |
| b. | Explain Magnitude Comparator with a truth table. | 5(M) | CO4 | BL3 |

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|---|---|---|---|---|
| 10a | Explain the operation of a decade counter with a neat timing diagram. | 10(M) | CO5 | BL3 |
| | (OR) | | | |
| 11a | Explain the architecture of RAM and mention its advantages and disadvantages. | 10(M) | CO5 | BL3 |

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Faculty

HOD 24/10/26