

ROLL NO.....

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**Odd Semester Examination-2024**

Paper Name: Analog Electronic Circuits

Paper Code: BTCSEAI 301

Time: 2.5 Hours

Max Marks: 60

Note: Assume missing data, if any.

Attempt (i) Section-A: All questions are compulsory.

(ii) Section-B: Attempt any FOUR QUESTIONS.

**Section –A (All questions are compulsory) 4×5=20 Marks**

| Sr.No. | QUESTIONS                                               | Marks | CO  | BL  |
|--------|---------------------------------------------------------|-------|-----|-----|
| Q1.    | Explain Series Negative Clipper with Negative Biasing.  | 5     | CO1 | BL3 |
| Q2.    | Explain Barkhausen Criterion for oscillation.           | 5     | CO5 | BL6 |
| Q3.    | Why BJT is called as current controlled device?         | 5     | CO2 | BL6 |
| Q4.    | What are ideal and practical characteristics of Op-Amp? | 5     | CO4 | BL5 |

**Section –B (Attempt any Four questions) 4×10=40 Marks**

| Sr.No... | QUESTIONS                                                                                                                                                                                                                         | Marks | CO  | BL  |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|
| Q1.      | Explain with the help of circuit diagrams and waveforms (a)Full wave bridge rectifier and (b)Center-tapped rectifier                                                                                                              | 10    | CO1 | BL4 |
| Q2.      | Explain Common-Base configuration with its input and output characteristics. Also explain the Base width modulation in it.                                                                                                        | 10    | CO2 | BL6 |
| Q3.      | How BJT works as an amplifier? In common base connection, current amplification factor is 0.9. If the emitter current is 1mA, determine the value of base current.                                                                | 10    | CO2 | BL2 |
| Q4.      | Explain working of a MOSFET with the help of circuit diagram. Draw its VI characteristics.                                                                                                                                        | 10    | CO3 | BL5 |
| Q5.      | A differential amplifier with a common-mode input of 500mV and a difference mode input of 30mV has an output of 5mV due to common mode input and 3V due to difference mode input. Find the difference-mode and common mode gains. | 10    | CO4 | BL2 |
| Q6.      | Explain the concept of virtual ground and calculate the gain for inverting amplifier.                                                                                                                                             | 10    | CO5 | BL6 |