



# MARRI LAXMAN REDDY

## INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi &amp; Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade &amp; Recognized Under Section 2(f) &amp; 12(B) of the UGC act, 1956

II B.Tech I Sem Supplementary Examination, February-2022

**Analog Electronics**

(EEE)

**Time: 3 Hours.****Max. Marks: 70**

Note: 1. Answer any FIVE questions.

2. Each question carries 14 marks and may have a, b as sub questions.

- |   |    |  |     |     |    |
|---|----|--|-----|-----|----|
| 1 | a) | Describe forward bias and reverse bias operation of PN-junction diode.   | 7M  | C01 | L2 |
|   | b) | Draw the Half-wave Rectifier circuit and then explain its operation with the help of waveforms.  | 7M  | C01 | L2 |
| 2 |    | Draw any four clipper circuits and then explain their operation with the help of input, output waveform.   | 14M | C01 | L3 |
| 3 | a) | Draw and explain the drain and transfer characteristics of MOSFET.   | 7M  | C02 | L2 |
|   | b) | Illustrate high-frequency equivalent circuit of MOSFET and then explain the same.  | 7M  | C02 | L2 |
| 4 |    | Draw small-signal equivalent circuits of CS, CG and CD MOSFET amplifiers and then explain different parameters involved in those.  | 14M | C02 | L4 |
| 5 | a) | Explain RC Coupled two-stage Common Emitter amplifier.   | 9M  | C03 | L2 |
|   | b) | Compare and contrast single-stage amplifier and multi-stage amplifiers.  | 5M  | C03 | L3 |
| 6 |    | Draw and explain the operation of different Class-B Power amplifier circuits. Also, state advantages and disadvantages of each circuit. Also, mention conduction angle, efficiency of class-B power amplifier. | 14M | C03 | L3 |
| 7 | a) | List and explain the general characteristics of negative feedback amplifier.   | 7M  | C04 | L2 |
|   | b) | Draw and explain the wein-bridge oscillator circuit.   | 7M  | C04 | L3 |
| 8 |    | Draw and explain Inverting and Non-inverting Op Amp circuits operation. Also, design Differentiator circuit using Op Amp.  | 14M | C05 | L4 |