Course Code: 1940418 Roll No: MLRS-R19

**MARRI LAXMAN REDDY**
**INSTITUTE OF TECHNOLOGY AND MANAGEMENT**
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

II B.Tech II Sem Supply End Examination, July 2022

**Electronic Circuit Analysis**

(ECE)

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

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
Each question carries 10 marks and may have a, b as sub questions.

**PART- A**

**(10*2 Marks = 20 Marks)**

| | | | | | |
|---|---|---|---|---|---|
| 1. | a) | What is mean by distortion in amplifiers? | 2M | CO1 | C2 |
| | b) | What is the need of multistage amplifiers? | 2M | CO1 | C2 |
| | c) | Classify negative feedback amplifiers. | 2M | CO2 | C1 |
| | d) | What is the need of feedback? | 2M | CO2 | C2 |
| | e) | State the conditions for oscillations. | 2M | CO3 | C1 |
| | f) | Differentiate between RC and LC type oscillators. | 2M | CO3 | C2 |
| | g) | What is cross-over distortion? | 2M | CO4 | C2 |
| | h) | Give the classification of Power Amplifiers. | 2M | CO4 | C1 |
| | i) | Give the applications of Astable Multivibrator. | 2M | CO5 | C1 |
| | j) | What is the need for triggering pulses? | 2M | CO5 | C2 |

**PART- B**

**(10*5 Marks = 50 Marks)**

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|---|---|---|---|---|---|
| 2 | a) | Develop Hybrid-Π model of a Common Emitter BJT Transistor. | 5M | CO1 | C2 |
| | b) | Design a BJT Cascode Amplifier circuit diagram and then explain its operation. | 5M | CO1 | C3 |
| | | **OR** | | | |
| 3 | | Discuss different inter-stage coupling schemes with the necessary circuit diagrams. Also, highlight advantages and disadvantages of each scheme. | 10M | CO1 | C2 |
| 4 | a) | Enumerate the effects of negative feedback on various characteristics of the Amplifier. | 6M | CO2 | C3 |
| | b) | What are the advantages and dis-advantages of negative feedback amplifiers? | 4M | CO2 | C2 |
| | | **OR** | | | |

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|---|---|---|---|---|---|
| 5 | | Draw the circuits of Current Shunt and voltage series feedback amplifiers and then determine the corresponding input impedance and output impedance. | 10M | CO2 | C3 |
| 6 | a) | Outline the concepts of Piezoelectric Crystal oscillator. | 5M | CO3 | C2 |
| | b) | Draw Hartley oscillator circuit and then explain its operation. | 5M | CO3 | C3 |
| | | **OR** | | | |
| 7 | | Draw Wein Bridge Oscillator circuit diagram and then derive the expression for condition for Oscillations and Frequency of Oscillations. | 10M | CO3 | C4 |
| 8 | a) | Draw and explain the circuit diagram of a single tuned capacitance coupled amplifier. Explain its operation with the help of its frequency response. | 5M | CO4 | C3 |
| | b) | Draw and explain the operation of Complementary symmetry Class B Push-pull amplifier. | 5M | CO4 | C3 |
| | | **OR** | | | |
| 9 | | In what way Tuned Amplifier is different from other normal Voltage Amplifier? Discuss the principal operation of series-fed Class-A Amplifier with the help of circuit diagram and then prove that its maximum conversion efficiency is 25%. | 10M | CO4 | C4 |
| 10 | a) | Design a transistor Miller time-base generator circuit and then explain its operation. | 6M | CO5 | C3 |
| | b) | Compare Miller and Bootstrap time base generators. | 4M | CO5 | C2 |
| | | **OR** | | | |
| 11 | | What is an Astable multivibrator? Explain with the help of a neat circuit diagram the principle of operation of an Astable multivibrator. Draw the waveforms at collector and bases of both transistors. | 10M | CO5 | C3 |

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