



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 Section 2(f) & 12(B) of the UGC act, 1956

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

Analog and Pulse Circuits

(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)

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|-------|---|----|-----|-----|
| 1. a) | What is the need of frequency analysis BJT and FET? | 2M | CO1 | BL1 |
| b) | Draw the RC coupled amplifier circuit. | 2M | CO1 | BL1 |
| c) | List the four feedback topologies. | 2M | CO2 | BL1 |
| d) | What is the effect of negative feedback on bandwidth? | 2M | CO2 | BL1 |
| e) | Define amplitude stability in oscillators. | 2M | CO3 | BL1 |
| f) | What are the conditions for oscillations? | 2M | CO3 | BL1 |
| g) | Classify power Amplifiers. | 2M | CO4 | BL2 |
| h) | Define Q-factor of tuned amplifiers. | 2M | CO4 | BL1 |
| i) | How many stable states for astable multivibrator. | 2M | CO5 | BL1 |
| j) | Write the Methods of Generating Time Base Waveform. | 2M | CO5 | BL1 |

PART- B

(10*5 Marks = 50 Marks)

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|-------|---|----|-----|-----|
| 2. a) | Discuss about low frequency response of BJT amplifiers. | 5M | CO1 | BL2 |
| b) | Write a short note on distortion in amplifiers. | 5M | CO1 | BL1 |

OR

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|-------|---|----|-----|-----|
| 3. a) | Explain the concept of Darlington pair in multi stage amplifiers. | 5M | CO1 | BL4 |
| b) | Draw and explain working of Hybrid - π model of Common Emitter transistor model. | 5M | CO1 | BL4 |
| 4. a) | Derive the expressions for A_v , Z_i , Z_o and A_i of a voltage shunt feedback amplifier. | 5M | CO2 | BL6 |
| b) | Draw the four types of feedback amplifiers and explain them briefly. | 5M | CO2 | BL4 |

OR

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|-----------|---|----------|------------|------------|
| 5 | Explain with the help of mathematical expressions, how the negative feedback in amplifiers increases amplifier bandwidth and reduces distortion in amplifiers. | 10M | CO2 | BL4 |
| 6 | a) Give the circuit diagram of a Colpitts oscillator and explain its working.
b) Write a short note on frequency and amplitude stability of Oscillators. | 5M
5M | CO3
CO3 | BL4
BL1 |
| OR | | | | |
| 7 | a) Which type of feedback is used in oscillators? Why is it used?
b) Derive the expression for frequency of oscillation in RC phase shift oscillator. | 5M
5M | CO3
CO3 | BL1
BL6 |
| 8 | a) Derive the equation for maximum efficiency of a class A transformer coupled amplifier.
b) Explain the principle of operation of Class-C amplifier. | 5M
5M | CO4
CO4 | BL6
BL4 |
| OR | | | | |
| 9 | Compare the push-pull class B and complementary symmetry class B amplifier with suitable circuit diagrams. | 10M | CO4 | BL2 |
| 10 | Explain the working principle of transistor time base generator with a neat circuit diagram. Mention its General features and limitations of time base signals. | 10M | CO5 | BL4 |
| OR | | | | |
| 11 | Draw and explain the working principle of Bistable multivibrator circuit and also explain the merits and limitations of it. | 10M | CO5 | BL4 |

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