



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 I Sem Supplementary Examination, February-2022

Signals and Systems

(ECE)

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.

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|---|----|-----------------------------------------------------------------------------------------------|-----|-----|-----|
| 1 | a) | Approximate a square function using $\sin(t)$ over $(0, 2\pi)$ for minimum mean square error? | 7M | C01 | BL3 |
| | b) | Explain the concept of orthogonality in complex functions? | 7M | C01 | BL2 |
| 2 | | Explain the concept of Impulse, Step and Signum functions? | 14M | C01 | BL2 |
| 3 | a) | Find the Fourier Transforms of Impulse and Signum functions? | 7M | C02 | BL3 |
| | b) | Explain the Dirichlet's condition in case of Fourier Transforms? | 7M | C02 | BL2 |
| 4 | | State and prove any five properties of Fourier Series? | 14M | C02 | BL3 |
| 5 | a) | Write short notes on types of filter characteristics of linear system? | 7M | C03 | BL2 |
| | | Define the following: | | | |
| | b) | i) Signal Bandwidth ii) System Bandwidth iii) Transfer function | 7M | C03 | BL2 |
| 6 | | Explain the concept of distortion less transmission through a system? | 14M | C03 | BL3 |
| 7 | a) | List the properties of ROC in case of Laplace Transforms? | 7M | C04 | BL2 |
| | b) | State and prove any five properties of Z- Transforms? | 7M | C04 | BL2 |
| 8 | | State and prove the properties of auto correlation function? | 14M | C05 | BL3 |