Course Code: 1930403 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 I Sem Supplementary Examination, July-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.

1	a)	Explain the approximation of a function by set of mutually orthogonal functions for minimum mean square error?	7M	CO1	BL2
	b)	Verify the signals are orthogonal over the interval $[0,2\pi]$, $X1(t)= 2$ and $X2(t)= \sqrt{3}\,(1-2t)$	7M	CO1	BL3
2		Explain the classification of signals with neat sketch?	14M	CO1	BL2
3	a)	Explain the Dirichlet's condition in case of Fourier Series?	7M	CO2	BL2
	b)	Explain Trigonometric Fourier series and derive the trigonometric Fourier coefficients?	7M	CO2	BL2
4		State and prove any five properties of Fourier Transforms?	14M	CO2	BL2
5	a)	Define Transfer function? Derive the expression for transfer function of an LTI System	7M	CO3	BL2
	b)	Derive the relation between Bandwidth and Rise time?	7M	CO3	BL3
6		Explain the different types of filter characteristics of linear system?	14M	CO3	BL2
7	a)	State and prove any five properties of Laplace Transforms?	7M	CO4	BL2
	b)	Compare Laplace, Fourier and Z Transforms?	7M	CO4	BL2
8		Explain the process of sampling theorem for band limited signals?	14M	CO5	BL3

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