Question Paper Code: R22A21EC05

R22

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech I Semester Supplementary Examinations, June/July – 2024

SIGNALS AND SYSTEMS

(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours **Max. Marks: 60**

Section – A (Short Answer type questions) **(10 Marks)**

Answer All Questions		Course Outcome	B.T Level	Marks
1.	Correlate the relationship between Unit Step and Unit Impulse Functions	CO1	L2	1M
2.	Differentiate between Vector and signal.	CO1	L1	1M
3.	Define Fourier transform	CO2	L1	1M
4.	What is the Fourier transform of DC signal with amplitude 1?	CO2	L2	1M
5.	What are the properties of LTI Systems?	CO3	L1	1M
6.	Write about the Graphical representation of convolution.	CO3	L1	1M
7.	List out the properties of Laplace transform.	CO4	L1	1M
8.	Write down the relationship between Fourier Transform and Laplace Transform.	CO4	L2	1M
9.	State Sampling theorem for Band pass Signal	CO5	L1	1M
10.	Define Nyquist Rate	CO5	L1	1M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 X 10M = 50M)**

11. A)	Explain about orthogonal signal space with signal approximation using orthogonal function?	CO1	L3	10M
	OR			
B)	State the Energy of the sum of Orthogonal signals.	CO1	L3	10M
12. A)	State and Prove the Properties of Fourier Series	CO2	L2	10M
	OR			
B)	Find the Hilbert Transform of the signal x(t)= cos(t)+sin(t)	CO2	L2	10M
13. A)	Bring out the relation between Correlation and Convolution and Explain the properties of Correlation function.	CO3	L3	10M
	OR			
B)	Explain about the Distortion less transmission through a system.	CO3	L3	10M
14. A)	i) Find the Laplace transform x(t)=t sin at	CO4	L2	5M
	ii) Determine the inverse Laplace Transform of 1/s (s+1)			5M
	OR			
B)	State and prove the properties of Z-Transform	CO4	L2	10M
15. A)	Derive the relation between correlation and convolution	CO5	L2	10M
	OR			
B)	State and Prove Parseval's Theorem	CO5	L2	10M