

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech II Semester Supplementary Examinations, December – 2024

PROBABILITY THEORY AND STOCHASTIC PROCESSES**(ELECTRONICS & 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. Define Random variable.	CO1	L1	1M
2. Define Poisson random variable.	CO1	L1	1M
3. Write short notes on Chebychev's inequality.	CO2	L2	1M
4. Explain about random variable and give example.	CO2	L1	1M
5. Write about Cross-Correlation Function.	CO3	L1	1M
6. Mention the properties covariance.	CO3	L2	1M
7. Write the expression for power spectral density.	CO4	L1	1M
8. Define spectral characteristics of system response.	CO4	L1	1M
9. Write about Noise equivalent bandwidth.	CO5	L2	1M
10. Define Average Noise Figure.	CO5	L1	1M

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

11. A) Discuss about joint and conditional probabilities in detail.	CO1	L3	10M
OR			
B) Describe the binomial density and distribution function for case N=6 and p=0.25.	CO1	L2	10M
12. A) State and explain the central limit theorem	CO2	L2	10M
OR			
B) What are the properties of Jointly Gaussian Random variable.	CO2	L2	10M
13. A) Explain in detail the wide sense stationary process and strict-sense stationary processes with necessary expressions.	CO3	L3	10M
OR			
B) List and explain various properties of Autocorrelation function	CO3	L2	10M
14. A) Derive the Relationship between Power Spectrum and Autocorrelation Function	CO4	L3	10M
OR			
B) Discuss about Cross-Power Density Spectrum and its properties.	CO4	L3	10M
15. A) Define Shannon-Hartley law and explain in detail with example.	CO5	L2	10M
OR			
B) Define Entropy and Trade -off between bandwidth and SNR.	CO5	L2	10M