ROLL NO.....

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Odd Semester Examination-2024

Paper Name: Probability and Stochastic Processes
Paper Code: BTECE 503, Lateral Entry
Time: 2.5 Hours **Max Marks: 60**
Note: Assume missing data, if any.
Attempt (i) Section-A: All questions are compulsory.
(ii) Section-B: Attempt any FOUR QUESTIONS.

Section –A (All questions are compulsory) 4×5=20 Marks

Sr.No.	QUESTIONS	Marks	CO	BL
Q1.	What do you understand by Probability and Stochastic process?	5	CO1	BL2
Q2.	A coin is biased so that the head is 3 times as likely to occur as a tail. If the coin is tossed twice, find the probability distribution for the number of tails.	5	CO2	BL5
Q3.	What is Joint Probability Distribution? Write the expression for two discrete random variables (X,Y).	5	CO3	BL1
Q4.	What are convergence and divergence series?	5	CO4	BL1

Section –B (Attempt any Four questions) 4×10=40 Marks

Sr.No.	QUESTIONS	Marks	CO	BL
Q1.	(i) Explain Baye's Theorem. (ii)Assume you draw a card from a standard deck of cards and it is given that it is a Face card then what is the probability that the card is Jack?	10	CO1	BL2, 3
Q2.	(i)What are Random Variables and what its type? (ii)A coin is flipped twice and random variable X is number of heads Tabulate the Probability Mass Function(PMF) What is the probability of getting two heads?	10	CO2	BL1, 4
Q3.	(i)Why do we take Probability Density Function instead of Probability at Y-axis in graph while calculating continuous random variable? (ii) What are Moments and Moment Generating Function? Derive second order moment about the mean.	2+4+4 =10	CO2,5	BL2, 6
Q4.	The joint probability distribution of discrete random variable X & Y is given by $f(x,y)=k(2x+y)$ where x & y are integers such that $0\le x\le 2$, $0\le y\le 3$ (i) Find the value of the const. k (ii) Find the marginal prob. Distribution of X and Y	10	CO3	BL3
Q5.	What are (i)Random sequences (ii)Limit Theorems and its type (iii)Weak and Strong laws of large numbers	10	CO4	BL1, 2
Q6.	What are Random processes, stationary processes and power spectral density?	10	CO5	BL2