20USTCT5012

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc.(Statistics) END SEMESTER EXAMINATIONS NOVEMBER -2023
SEMESTER - V
20USTCT5012 - Stochastic Processes

Total Duration : 2 Hrs 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Explain Stationary and independent increment process.
2. Show that the sum of two independent Poisson process is a Poisson process.
3. Compute Pure birth process.
4. Explain operating characteristics of a queuing system.
5. Describe the classification of states of Markov Chains.
6. State the postulates of a Poisson Process.
7. Describe Linear Growth process.
8. Differentiate between transient state and steady state.

Section C

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. Describe strict sense and wide sense stationary processes.
10. Compute Chapman – Kolmogorov equations
11. Justify that the Inter-arrival time of a Poisson process (i.e. the interval between two successive occurrences of a poisson process) with parameter λ follows an exponential distribution with mean $1/\lambda$
12. Compute Birth and Death Process.
13. Asses the characteristics of the queue of the Model (M/M/1):(∞/FIFO-Single Server, Infinite capacity queue

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