

School of Computer Science Engineering and Technology

Course- B.Tech.	Type- Core
Course Code- CSET240	Course Name- Probability and Statistics
Year- 2024	Semester- Odd
Date- 09/09/2024 - 13/09/2024	Batch- 2023-2026

CO-Mapping

	CO1	CO2	CO3
Q1			✓
Q2			✓
Q3			✓
Q4			✓

Objectives

1. Students will be able to implement real life problems based on Binomial distribution.
2. Students will be able to implement real life problems based on Poisson distribution.
3. Students will be able to implement real life problems based on Geometric distribution.
 1. There are four fused bulbs in a lot of 10 good bulbs. If three bulbs are drawn at random with replacement, find the probability of distribution of the number of fused bulbs drawn.
 2. Assume that the probability of a defective computer component is 0.02. Components are randomly selected. Find the probability that the first defect is caused by the seventh component tested. How many components do you expect to test until one is found to be defective?
 3. A bakery is known for its freshly baked croissants. The table below shows the number of croissants sold per hour during a busy morning shift for two weeks:

Hourly Sales	Number of Days
10	2
15	3
20	4
25	3
30	2

Using the data in the table, answer the following questions related to the Poisson distribution:

- (1) What is the average (mean) number of croissants sold per hour during the busy morning shift?
- (2) Calculate the probability that exactly 20 croissants are sold in an hour during the busy

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morning shift.

(3) Find the probability that fewer than 15 croissants are sold in an hour during the busy morning shift.

(4) Determine the standard deviation of the number of croissants sold per hour during the busy morning shift.

4. A call center receives an average of 4.5 calls every 5 minutes. Each agent can handle one of these calls over the 5-minute period. If a call is received, but no agent is available to take it, then that caller will be placed on hold. Assuming that the calls follow a Poisson distribution, what is the minimum number of agents needed on duty so that calls are placed on hold at most 10% of the time?