School of Computer Science Engineering and Technology

Course-B.Tech.	**Type-** Core
Course Code- CSET240	**Course Name-** Probability and Statistics
Year- 2024	**Semester- 3rd sem (**Odd)
Date- 14/10/2024 - 20/10/2024	**Batch-** 2023-2027

CO-Mapping

	CO1	**CO2**	**CO3**
Q1		√	√
Q2		√	√
Q3		√	√

Objectives

1. Students will be able to implement real life problems based on exponential distribution.
2. Students will be able to implement real life problems based on Exponential distribution.
3. Students will be able to implement real life problems based on Log- Normal distribution.

Lab -09 Set 1

Q1. Suppose that during rainy season on a tropical island the length of the shower has an exponential distribution, with parameter $\lambda = 2$, time being measured in minutes. What is the probability that a shower will last more than three minutes? If a shower has already lasted for 2 minutes, what is the probability that it will last for at least one more minute?

Q2. Commonly, car cooling systems are controlled by electrically driven fans. Assuming that the lifetime T in hours of a particular make of fan can be modelled by an exponential distribution with $\lambda = 0.0003$ find the proportion of fans which will give at least 10000 hours service. If the fan is redesigned so that its lifetime may be modelled by an exponential distribution with $\lambda = 0.00035$, would you expect more fans or fewer to give at least 10000 hours service?

Q3. Sample 9000 random numbers from a normal distribution with mean 7 and standard deviation 8. Take log of all numbers. Remove nan values and check the mean and std deviation of the leftover numbers. Also plot histogram of the newly "logged" array. Check if the newly transformed array follows lognormal distribution or not.