School of Computer Science Engineering and Technology

Course- B.Tech. Type- Core
Course Code- CSET240 Course Name- Probability and Statistics
Year- 2023-24 Semester- ODD
Date-28-08-2023 to 01-09-2023 Batch-All

Lab (Week -5)

Q1: Sarah is rolling a fair eight-sided die four times. Let the random variable Z represent the sum of the four numbers rolled. Calculate the probability distribution for Z. **(Within Lab)**

Q2: A university is conducting an analysis of its students' performance in a physics class. The professor has collected data on the number of correct answers for each student in a recent quiz. Let's consider the following discrete random variable: X = "Number of Correct

Out of 60 students, the professor recorded the following distribution of the number of correct answers:

Number of Correct Answers	Frequency
0	5
1	7
2	10
3	20
4	12
5	6

a) Calculate the mean and variance of the random variable X**. (Within Lab)**
b) If a student is randomly selected from the class, what is the probability that they scored at least 4 correct answers on the quiz? **(Within Lab)**

Q3. Draw 2000 random numbers from the following distribution:

X	P(X=x)
1	0.3
2	0.4
3	0.2
4	0.1

You are not allowed to use any inbuilt function. You have to use the concepts of the Probability Mass Function (PMF) and Cumulative Distribution Function (CDF). **(Within Lab)**