


**National University of Computer and Emerging Sciences, Lahore Campus**

	<b>Course:</b>	<b>Probability and Statistics</b>	<b>Course Code:</b>	<b>MT2005</b>
	<b>Program:</b>	<b>BS(Computer Science)</b>	<b>Semester:</b>	<b>Spring-2025</b>
	<b>Instructor:</b>	<b>Ms. Kanwal Saleem</b>	<b>Total Marks:</b>	<b>15</b>
	<b>Submission Date:</b>	<b>24-03-2025</b>	<b>Weight</b>	<b>4%</b>
	<b>Section:</b>	<b>BCS-4E</b>	<b>Page(s):</b>	<b>1</b>
	<b>Evaluation</b>	<b>Assignment-2 (Graded)</b>		
<b>Instruction/Notes:</b>		<b>Attempt All Questions</b>		

**QUESTION 1:**

**(Marks=5+4)**

A cloud storage provider is testing its data redundancy system by selecting 3 backup servers at random from a total of 12 servers in a data center. Among these 12 servers, 4 are high-performance SSD servers, while the remaining 8 are standard HDD servers. Let  $X$  be the number of high-performance SSD servers selected.

1. Find the probability distribution function of  $X$  and construct its probability distribution table.
2. Determine the cumulative distribution function (CDF).

**QUESTION 2:**

**(Marks=2+4)**

- 1- A witness to a hit-and-run accident told the police that the license number contained the letters RLH followed by 3 digits, the first of which was a 5. If the witness cannot recall the last 2 digits, but is certain that all 3 digits are different, find the maximum number of automobile registrations that the police may have to check.
- 2- An instructor in a class has a set of 10 problems with the information that final exam will contain random selection of 5 problems among these 10. If a student has figured out how to do 7 of the problems, then what is the probability that:
  - a) He or she will answer all five problems.
  - b) He will answer at least 4 problems