CCIT4021 Discrete Mathematics

2023-24 Semester 1

Assignment 02

Q1.
You should consider whether the Pigeonhole Principle can be applied.

Q2.
This is a counting problem.

Q3.
(a)
For each possible outcome, the X value should be computed.
For each possible X value, the probability should be computed.

(b)
The expected value of X should be computed.

(c)
The variance of X should be computed.

Q4.
If the statement is true, prove it by Mathematical Induction.
If the statement is false, give a counterexample.

Q5.
If the statement is true, prove it by Mathematical Induction. (n_a and $C_{a,j}$ should be considered.)
If the statement is false, give a counterexample.

Q6.
(a)
Write AT MOST TWO statements to describe the set S.

(b)
Write down five elements of T.
Write AT MOST TWO statement to describe the elements of the set T.

Q7.
You may draw the Hasse diagram on a draft paper and obtain the answers.