

- 1) A box contains 30 mangoes, 10 of which are rotten and the rest are OK. If 4 mangoes are drawn blindly from the box all at once, what is the probability that one mango will be rotten and the rest of them are OK?
- 2) If six fair dice are rolled, find the probability that all faces will be different.
- 3) A person has 5 shirts, 6 trousers, and 7 pairs of socks.
 - (i) In how many ways can he dress up (using one shirt, one trouser and one pair of socks)?
 - (ii) In how many ways can he dress up without wearing any socks?
 - (iii) If four of the trousers need repairs, and he blindly selects a trouser, what is the likelihood that he will be wearing a trouser which needs repair?
- 4) Find the probability of getting at least one double six in six rolls of a pair of fair dice.
- 5) A fair die is rolled six times. Find the probability of the event that not all six faces were observed.
- 6) There are seven people in a party. Assume each one of them could have been born in any one of the 365 days of a year. In how many possible ways they could all have been born?
- 7) There are seven people in a party. Assume each one of them could have been born in any one of the 365 days of a year with equal chance. What is the probability that they all have different birth days.
- 8) There are n chairs arranged in a circle and there are n people. How many different ways can the n people be seated, considering two seatings to be the same if all the neighbors of everyone are the same?
- 9) A student is given a true-false examination with ten questions. If he gets eight or more correct, he passes. If he is completely guessing on each part, what is the probability of the student passing the examination?
- 10) We randomly select 5 numbers (without replacement) out of the first m natural numbers. Find the probability that the median of the selected numbers is k , $k = 3, 4, \dots, m - 2$.
- 11) A box has n knives and n forks. What is the probability of getting at least one knife-fork pair when we randomly select k items from the box?
- 12) The letters of the word "statistics" are randomly arranged in a row. How many arrangements are possible?