Sheet 1

(1) One card is drawn randomly from a box containing 9-cards numbered from 1 to 9. Describe the sample space of the experiment and find the following events:

- A= Drawing a card numbered with an odd number.
- B= Drawing a card numbered with a prime number.
- Occurrence of A or B.
- Occurrence of A and B.
- Occurrence of only A i.e., $(A \setminus B)$.
- Non-occurrence of A i.e.,(A^c).

(2) If we toss a coin twice, find the following events:

- A= Only one head appears.
- B= At least one head occurs.
- C= The second toss results in a tail.
- $B \cup C, \quad B \cap C, \quad B^c \quad$ and $B \setminus C$.

(3) A committee of 3 members is to be formed consisting of one representative from labor, management and the public. If there are 3 possible representatives from labor, 2 from management and 4 from the public. Determine how many different committees can be formed?

(4) How many ways can 5 differently colored marbles be arranged in a row?

(5) Iy is required to seat 5 men and 4 women in a row so that the women occupy the even places. How many such arrangements are possible?

(6) How many 4-digit numbers can be formed with the 10 digits 0,1,2,3,...,9 if:

- repetitions are allowed.

- repetitions are not allowed.
- The last digit must be zero and repetitions are not allowed?

(7) How many ways can 4 people be selected out of 10 people for doing 4-different tasks?

(8) In a random experiment of tossing a fair die twice or (two distinct dice once), observe the numbers appearing on their upper faces. Find the probability that:

- A = The sum of the two appearing digits is 7.
- B = The sum of the two appearing digits greater than 10.
- C = The sum of the two appearing digits less than or equal to 3.
- D = Appearing the same numbers.
- F = Appearing of the number 3 at least once.