Ch-14 Probability

1. A bag contains 9 black and 12 white balls. One ball is drawn at random. What is the probability that the ball drawn is black?
2. Find the probability that a number selected, randomly from the numbers 1 to 25, is not a prime number, when each of the given number is equally likely to be selected.
3. A bag contains 10 red, 5 blue and 7 green balls. A ball is drawn at random. Find the probability of this ball being not a blue ball.
4. Two dice are thrown at the same time and the product of numbers appearing on them is noted. Find the probability that the product is less than 9.
5. Cards, marked with numbers 5 to 50, are placed in a box and mixed thoroughly. A card is drawn from the box at random. Find the probability that the number on the taken out card is –
    a. a prime number less than 10.
    b. a number which is a perfect square.
6. Two dice are thrown simultaneously. What is the probability that –
    a. 5 will not come up on either of them?
    b. 5 will come up on at least one?
    c. 5 will come up at both dice?
7. From a well shuffled pack of playing cards, black jacks, black kings and black aces are removed. A card is then drawn from the pack. Find the probability of getting –
    a. a red card.
    b. not a diamond card.
8. A bag contains cards which are numbered from 2 to 90. A card is drawn at random from the bag. Find the probability that it bears –
    a. a two-digit number.
    b. a number which is a perfect square.
9. Cards numbered 1 to 30 are put in a bag. A card is drawn at random from this bag. Find the probability that the number on the drawn card is –
    a. not divisible by 3.
    b. a prime number greater than 7.
    c. not a perfect square number.
10. Two different dice are tossed together. Find the probability –
    a. That the numbers on either die is even.
    b. That the sum of numbers appearing on the two dice is 5.
11. Cards each marked with one of the numbers 6, 7, 8, ..., 15 and placed in a box and mixed thoroughly. One card is drawn at random from the box. What is the probability of getting a card with number less than 10?
12. A card is drawn at random from a well-shuffled deck of 52 cards. What is the probability of getting a black king?
13. What is the probability that two different friends have different birthdays? (ignoring leap year).
14. A box contains 3 blue, 2 white and 4 red marbles. If a marble is drawn at random from the box, what is the probability that it will not be a white marble?

15. From a well-shuffled pack of cards, a card is drawn at random. Find the probability of getting a black queen.
16. A bag contains 4 red and 6 black balls. A ball is taken out of the bag at random. Find the probability of getting a black ball.
17. A die is thrown once. Find the probability of getting –
    a. a number less than 3.
    b. a number greater than 5.
18. Cards bearing numbers 3 to 20 are placed in a bag and mixed thoroughly. A card is taken out from the bag at random. What is the probability that the number on the card taken out is an even number?
19. Two friends were born in the year 2000. What is the probability that they have the same birthday?
20. A box contains cards marked with numbers 5 to 20. A card is drawn from the bag at random. Find the probability of getting a number which is a perfect square.
21. Two dice are thrown at the same time. Find the probability of getting different numbers on the dice.
22. Cards with numbers 2 to 101 are placed in a box. A card is selected at random. Find the probability that the card has a square number.
23. In a game of chance there is spinning of an arrow which comes to rest pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8 and there are equally likely outcomes. What is the probability that it will point at –
    a. 7?
    b. an odd number?
    c. a number less than 9?
24. A game consists of tossing a one-rupee coin 3 times and noting its outcome each time. Hanif wins if all the tosses give the same result, i.e., three heads or three tails, and loses otherwise, calculate the probability that hanif will lose the game.
25. Find the probability that a number selected at random from numbers 3, 4, 5, ..., 25 is prime.
26. The king, queen and jack of diamonds are removed from a pack of 52 cards are then the pack is well-shuffled. A card is drawn from the remaining cards. Find the probability of getting –
    a. a card of Diamonds.
    b. a Jack.
27. A bag contains 5 red, 4 blue and 3 green balls. A ball is taken out of the bag at random. Find the probability that the selected ball is –
    a. of red colour.
    b. not of green colour.
28. A card is drawn at random from a well-shuffled deck of playing cards. Find the probability of drawing –
    a. a face card.
    b. a card which is neither a king nor a red card.
29. A bag contains tickets, numbered 11, 12, 13, ..., 30. A ticket is taken out from the bag at random. Find the probability that the number on the drawn ticket is –
    a. a multiple of 7.
    b. greater than 15 and a multiple of 5.

30. Cards bearing numbers 1, 3, 5, ..., 35 are kept in a bag. A card is drawn at random from the bag. Find the probability of getting a card bearing –
    a. a prime number less than 15.
    b. a number divisible by 3 and 5.
31. Red kings, queens and jacks are removed from a deck of 52 playing cards and then well-shuffled. A card is drawn from the remaining cards. Find the probability of getting –
    a. a King.
    b. a red card.
    c. a spade.
32. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting –
    a. a king of red suit.
    b. a queen of black suit.
    c. a jack of hearts.
    d. a red faced card.
33. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball from the bag is thrice that of a red ball, find the number of blue balls in the bag.
34. Two coins are tossed together find the probability of getting –
    a. at least one tail.
    b. one head.
35. An unbiased die is thrown once, find the probability of getting –
    a. a number greater than 4.
    b. a multiple of 3.
36. Two dice are thrown at the same time. Find the probability of getting –
    a. different numbers on both the dice.
    b. same number on both the dice.
    c. an odd number on each of them.
37. A lot consists of 48 mobile phones of which 42 are good, 3 have only minor defects and 3 have major defects. Varnika will buy a phone if it is good but the trader will only buy a mobile if it has no major defect. One phone is selected at random from the lot. What is the probability that it is –
    a. acceptable to Varnika?
    b. acceptable to the trader?
38. Find the probability that a number selected at random from the numbers 1, 2, 3, ..., 35 is –
    a. a prime number.
    b. a multiple of 7.
    c. a prime number less than 15.