CHAPTER 14 PROBABILITY

SUBJECT: MATHEMATICS **MAX. MARKS : 40**

CLASS : X **DURATION : 1½ hrs**

General Instructions:

(i). **All** questions are compulsory.

(ii). This question paper contains 2**0** questions divided into five Sections A, B, C, D and E.

(iii). **Section A** comprises of **10 MCQs** of **1 mark** each. **Section B** comprises of 4 questions of **2 marks** each. **Section C** comprises of 3 questions of **3 marks** each. **Section D** comprises of 1 question of **5 marks** each and **Section E** comprises of 2 Case Study Based Questions of **4 marks** each.

(iv). There is no overall choice.

(v). Use of Calculators is not permitted

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. A bag has 5 white marbles, 8 red marbles and 4 purple marbles. If we take a marble randomly, then what is the probability of not getting purple marble?
(a) 0.5 (b) 0.66 (c) 0.08 (d) 0.77

2. Two dice are thrown simultaneously. What is the probability of getting doublet?
(a) 1/36 (b) 1/6 (c) 5/6 (d) 11/36

3. A box contains cards numbered 9 to 53. A card is drawn at random from the box. The probability that the drawn card has a number which is a perfect square is :
(a) 1/45 (b) 2/15 (c) 4/45 (d) 1/9

4. A card is selected from a deck of 52 cards. The probability of being a red face card is
(a) 3/26 (b) 3/13 (c) 2/13 (d) 1/2

5. The probability of getting a bad egg in a lot of 400 is 0.035. The number of bad eggs in the lot is
(a) 7 (b) 14 (c) 21 (d) 28

6. Two dice are thrown at the same time and the product of numbers appearing on them is noted. The probability that the product is a prime number is
(a) 1/3 (b) 1/6 (c) 1/5 (d) 5/6

7. A ticket is drawn at random from a bag containing tickets numbered from 1 to 40. The probability that the selected ticket has a number which is a multiple of 5 is
(a) 1/5 (b) 3/5 (c) 4/5 (d) 1

8. Two different dice are thrown together. The probability of getting the sum of the two numbers less than 7 is:
(a) 5/12 (b) 7/12 (c) 12/5 (d) 3/11

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

9. **Assertion (A):** The probability of getting exactly one head in tossing a pair of coins is 1/2.
Reason (R): The sample space of two coin tossed is = {HH, TT, HT, TH} = 4

10. **Assertion (A):** The probability of winning a game is 0.4, then the probability of losing it, is 0.6.
Reason (R): P(E) + P (not E) = 1

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. Find the probability of getting 53 Fridays in a leap year.

12. One card is drawn at random from a well-shuffled deck of 52 playing cards. Find the probability that the card drawn is (i) either a red card or a king, (ii) neither a red card nor a queen.

13. 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.

14. 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
(i) not divisible by 3.
(ii) a prime number greater than 7.

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Two coins are tossed simultaneously. What is the probability of getting
(i) At least one head? (ii) At most one tail? (iii) A head and a tail?

16. All the black face cards are removed from a pack of 52 playing cards. The reaming cards are well shuffled and then a card is drawn at random. Find the probability of getting (i) face card (ii) red card (iii) black card.

17. Two dice are thrown at the same time. What is the probability that the sum of the two numbers appearing on the top of the dice is
(i) at least 9? (ii) 7? (iii) less than or equal to 6?

SECTION – D

Questions 18 carry 5 marks.

18. From a pack of 52 playing cards, jacks, queens, kings and aces of red colour are removed. From the remaining a card is drawn at random. Find the probability that the card drawn is (i) a black queen (ii) a red card (iii) a face card (iv) a spade card

OR

A box contains cards bearing numbers from 6 to 70. If one card is drawn at random from the box, find the probability that it bears
(i) a one digit number. (ii) a number divisible by 5.
(iii) an odd number less than 30. (iv) a composite number between 50 and 70.

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Tushara took a pack of 52 cards. She kept aside all the black face cards and shuffled the remaining cards well.

Based on the above information answer the following questions.

(i) Write the number of total possible outcomes.

(ii) She draws a card from the well-shuffled pack of remaining cards. What is the probability that the card is a face card?

(iii) Write the probability of drawing a black card.

OR

(iii) What is the probability of getting neither a black card nor an ace card?

20. A, B, C, D and E are five friends. They prepared some numbered cards with labelled from 11 to 60 and then they put all the number cards in the empty box. In this game, every friend was asked to pick the card randomly and after each draw, card was replaced back in the box.

(a) Find the probability that the number on the drawn card is an odd number (1)

(b) Find the probability that the number on the drawn card is a perfect square number (1)

(c) Find the probability that the number on the drawn card is divisible by 5 (1)

(d) Find the probability that the number on the drawn card is a prime number less than 20 (1)