

Maxprap. Chapter wise Series Class 10th - Probability

Class : 10th

Subject: Mathematics

Max. Marks : 50

Duration : 2 Hrs

Sections: A (MCQs), B (Short Answer-I), C (Short Answer-II), D (Long Answer), E (Case-Based).

General Instructions:

- (i). All questions are compulsory.
- (ii). This question paper contains 23 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 5 questions of 2 marks each. Section C comprises of 4 questions of 3 marks each. Section D comprises of 2 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.
- (vi). Draw neat figures wherever required. Take $\pi = 22/7$, wherever required if not stated.

Section A

Questions 1 to 10 carry 1 mark each

1. A bag contains 5 pink, 8 blue and 7 yellow balls. One ball is drawn at random from the bag. What is the probability of getting neither a blue nor a pink ball?

- a) $\frac{7}{20}$ b) $\frac{13}{20}$ c) $\frac{1}{4}$ d) $\frac{2}{5}$

2. A die is thrown once. The probability of getting an odd number greater than 3 is

- a) $\frac{1}{6}$ b) 0 c) $\frac{1}{2}$ d) $\frac{1}{3}$

3. A card is drawn at random from a well - shuffled deck of 52 playing cards. The probability of getting an ace of spade is:

- a) $\frac{1}{52}$ b) $\frac{3}{52}$ c) $\frac{1}{26}$ d) $\frac{1}{13}$

4. An unbiased die is thrown once. The probability of getting an odd number is

- a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{1}{2}$ d) $\frac{2}{5}$

5. One ticket is drawn at random from a bag containing tickets numbered 1 to 40. The probability that the selected ticket has a number which is a multiple of 5 is

- a) $\frac{3}{5}$ b) $\frac{1}{5}$ c) $\frac{4}{5}$ d) $\frac{1}{3}$

6. A bag contains 3 white, 4 red and 5 black balls. One ball is drawn at random. What is the probability that the ball drawn is neither black nor white?

- a) $\frac{1}{3}$ b) $\frac{1}{2}$ c) $\frac{1}{4}$ d) $\frac{4}{3}$

7. Someone is asked to take a number from 1 to 100. The probability that it is a prime is

- a) $\frac{1}{5}$ b) $\frac{1}{40}$ c) $\frac{1}{4}$ d) $\frac{6}{25}$

8. A die is rolled once. The probability that a composite number comes up, is:

- a) $\frac{1}{3}$ b) $\frac{1}{2}$ c) $\frac{2}{3}$ d) 0

Assertion(A)/Reason(R) Based (9-10): In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

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

9. Assertion (A): The probability of an impossible event is 0.

Reason (R): There is no favorable event in case of an impossible event.

10. Assertion (A): If a box contains 5 white, 2 red and 4 black marbles, then the probability of not drawing a white marble from the box is $\frac{5}{11}$.

Reason (R): $P(\bar{E}) = 1 - P(E)$, where E is any event.

SECTION – B

Questions 11 to 15 carry 2 marks each

11. One card is drawn at random from a well - shuffled deck of 52 cards. Find the probability that the card drawn is

- a) a red card
 b) the six of the clubs,
 c) a face card

12. Cards with numbers 2 to 101 are placed in a box. A card is selected at random. Find the probability that the card has an even number.

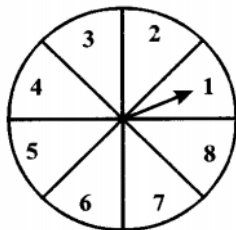
13. In a simultaneous throw of a pair of dice, find the probability of getting 5 as the sum.

14. A box contains 20 balls bearing numbers 1, 2, 3, ..., 20. A ball is drawn at random from the box. Find the probability that the number on the ball is

- a) divisible by 2.
 b) a prime number.
 c) not divisible by 10.

15. A game of chance consists of spinning an arrow on a circular board is divided into 8 equal parts, which comes to rest pointing at one of the numbers 1, 2, 3, ... 8 as shown in

the figure, which are equally likely outcomes. What is the probability that the arrow will point at



- (a) an odd number (b) a number greater than 3 (c) a number less than 9

SECTION – C

Questions 16 to 19 carry 3 marks each

16. The king, queen and jack of clubs are removed from a deck of 52 playing cards and the remaining cards are shuffled. A card is drawn from the remaining cards. Find the probability of getting a card of

- a) heart (b) queen (c) clubs.

17. One card is drawn from a well - shuffled deck of 52 cards. Find the probability of getting

- a) a king of red colour d) the jack of hearts
b) a face card e) a spade
c) a red face card f) the queen of diamonds

18. A child's game has 8 triangles of which 3 are blue and rest are red, and 10 squares of which 6 are blue and rest are red. One piece is lost at random. Find the probability that it is

- a) triangle c) square of blue colour
b) square d) triangle of red colour

19. A piggy bank contains hundred 50 paise coins, fifty ₹ 1 coins, twenty ₹ 2 coins and ten ₹ 5 coins. If it is equally likely that one of the coins will fall out when the bank is turned upside down, find the probability that the coin which fell

- a) will be a 50 paise coin c) will be of value less than ₹ 5
b) will be of value more than ₹ 1 d) will be a Rs.1 or ₹ 2 coin

SECTION – D

Questions 20 to 21 carry 5 marks each

20. A number x is selected at random from the numbers 1, 2, 3 and 4. Another number y is selected at random from the numbers 1, 4, 9 and 16. Find the probability that product of x and y is less than 16.

21. 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 face card
c) a red face card

- d) a queen of black suit
- e) a jack of hearts
- f) a spade.

SECTION – E (Case Study Based Questions)

Questions 22 & 23 carry 4 marks each

22. Read the following text carefully and answer the questions that follow:

The table given below shows the ages of 75 teachers in a school.

Age (in years)	18-29	30-39	40-49	50-59
Number of teachers	3	27	37	8

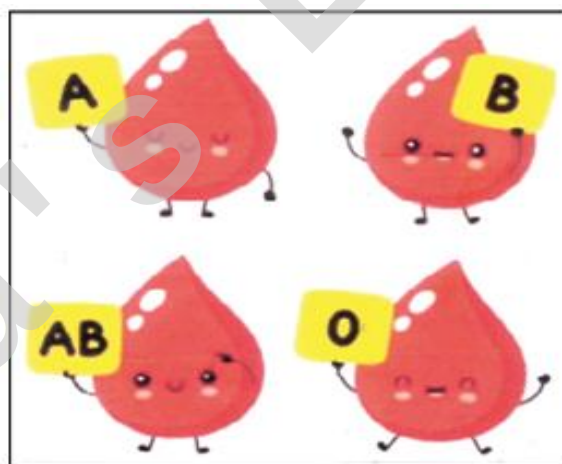
A teacher from this school is chosen at random. What is the probability that the selected teacher is

- a) 40 or more than 40 years old?
- b) of an age lying between 30 - 39 years (including both)?
- c) 18 years or more and 49 years or less?
- d) 18 years or more old?

23. Read the following text carefully and answer the questions that follow:

Blood group describes the type of blood a person has. It is a classification of blood based on the presence or absence of inherited antigenic substances on the surface of red blood cells. Blood types predict whether a serious reaction will occur in a blood transfusion.

In a sample of 50 people, 21 had type O blood, 22 had type A, 5 had type B and rest had type AB blood group.



- a) What is the probability that a person chosen at random had type O blood? (1)
- b) What is the probability that a person chosen at random had type AB blood group? (1)
- c) What is the probability that a person chosen at random had neither type A nor type B blood group? (2)

OR

What is the probability that person chosen at random had either type A or type B or type O blood group? (2)

Probability Paper Details – Analysis		
Objective Questions		
MCQ	1 marks x 8 question = 8	
Assertion Reason	1 marks x 2 question = 2	
Subjective		
Short type I	2 marks x 5 question = 10	
Short type II	3 marks x 4 question = 12	
Long Type	5 marks x 2 question = 10	
Case Studies Based		
Case 1	4 marks	
Case 2	4 marks	

Total = 50 marks Your Score =