Probability

SECTION – I
Straight Objective Type

This section contains multiple choice questions. Each question has four choices (a), (b), (c), (d), out of which ONLY ONE is correct.

1. Two Players, Sangeeta and Reshma, play a tennis match. It is known that the probability of Sangeeta winning the match is 0.62. What is the probability of Reshma winning the match?
(a) 0.62   (b) 0.38   (c) 1   (d) 0.24

2. Savita and Hanida are friends. What is the probability that both will have different birth days?

(a) $\dfrac{1}{2}$ (b) $\dfrac{2}{3}$ (c) $\dfrac{364}{365}$ (d) $\dfrac{365}{364}$

3. In a musical chair game, the person playing the music has been advised to stop playing the music at any time within 2 minutes after she starts playing. What is the probability that the music will stop within first haft-minute after starting?

(a) $\dfrac{1}{4}$ (b) $\dfrac{1}{2}$ (c) 1   (d) $\dfrac{2}{5}$

4. A missing helicopter is reported to have crashed some where in the rectangular region shown in the figure. What is the probability that it crashed inside the lake shown in the figure?
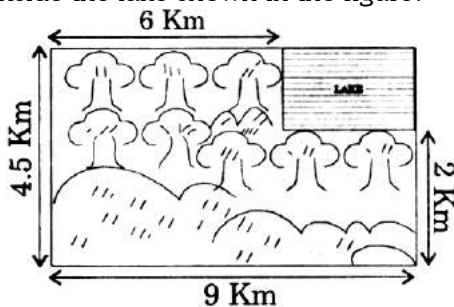
(a) $\dfrac{5}{27}$ (b) $\dfrac{9}{15}$ (c) $\dfrac{4}{13}$ (d) $\dfrac{1}{2}$

5. The probability that a number selected at a random from the numbers 1 to 25 is not a prime number when each of the given is equally likely to be selected.

(a) $\dfrac{9}{11}$ (b) $\dfrac{16}{25}$ (c) $\dfrac{11}{25}$ (d) $\dfrac{14}{25}$

6. The probability of throwing an even number with an ordinary six faced die is

(a) $\dfrac{1}{2}$ (b) $\dfrac{1}{3}$ (c) $\dfrac{4}{5}$ (d) $\dfrac{1}{7}$

7. The probability of throwing 9 with two dice is

(a) $\dfrac{1}{9}$ (b) $\dfrac{1}{2}$ (c) $\dfrac{1}{3}$ (d) 1

8. A card is drawn at random from a well - shuffled pack of 52 cards. Then the probability that the card drawn is neither a red card nor a queen is

(a) $\dfrac{6}{13}$ (b) $\dfrac{3}{15}$ (c) $\dfrac{1}{2}$ (d) $\dfrac{4}{13}$

9. The probability of getting a number less than 5 in a single throw of a die is

(a) $\dfrac{4}{15}$ (b) $\dfrac{2}{3}$ (c) $\dfrac{5}{13}$ (d) $\dfrac{1}{52}$

10. If the probability of winning a game is 0.3 then the probability of losing it is

(a) 1   (b) 0.7   (c) 0.6   (d) 0.1

11. Two coins are tossed simultaneously then the probability of getting two heads is

(a) $\dfrac{3}{4}$ (b) $\dfrac{1}{4}$ (c) $\dfrac{1}{2}$ (d) 1

12. On tossing three coins at a time then the probability of getting 3 heads, is

(a) $\dfrac{1}{8}$ (b) $\dfrac{3}{8}$ (c) $\dfrac{2}{8}$ (d) $\dfrac{5}{8}$

13. 1000 tickets of a lottery were sold and there are 5 prizes on these tickets. If saket has purchased one lottery ticket, Then the probability of winning a prize is

(a) 0.005   (b) 0.25   (c) 0.15   (d) 0.05

14. A child has a block in the shape of cube with one letter written on each face as shown below

$$\boxed{A}\ \boxed{B}\ \boxed{C}\ \boxed{D}\ \boxed{E}\ \boxed{A}$$

the cube is thrown once. Then the probability of getting A is

(a) $\dfrac{1}{6}$ (b) $\dfrac{1}{3}$ (c) $\dfrac{1}{2}$ (d) $\dfrac{1}{5}$

15. The bag contains 5 black, 7 red and 3 white balls. A ball is drawn from the bag at random. Then the probability that the red ball drawn is

(a) $\dfrac{7}{15}$ (b) $\dfrac{8}{15}$ (c) $\dfrac{2}{3}$ (d) $\dfrac{5}{7}$

16. A bag contains 5 red balls, 8 white balls, 4 green balls and 7 black balls. If one ball is drawn at random then the probability that it is black.

(a) $\dfrac{7}{24}$ (b) $\dfrac{5}{24}$ (c) $\dfrac{5}{6}$ (d) $\dfrac{5}{7}$

17. A card is drawn from a well - shuffled deck of playing cards then the probability of drawing a face card is

(a) $\dfrac{2}{13}$ (b) $\dfrac{4}{13}$ (c) $\dfrac{5}{13}$ (d) $\dfrac{7}{13}$

18. One card is drawn from a well -shuffled deck of 52 cards then the probability of '10' of a block suit is

(a) $\dfrac{1}{13}$ (b) $\dfrac{1}{52}$ (c) $\dfrac{1}{26}$ (d) $\dfrac{1}{8}$

19. A bag contains 5 red balls and some blue balls. If the probability of drawing a ball is double that of a red ball then the number of blue balls in the bag?

(a) 5   (b) 10   (c) 7   (d) 8

20. Cards marked with the numbers 2 to 101 are placed in a box and mixed thoroughly. One card is drawn from this box then the probability that the number on the card an even number is

(a) $\dfrac{1}{2}$ (b) $\dfrac{2}{25}$ (c) $\dfrac{9}{100}$ (d) $\dfrac{2}{25}$

SECTION – II
Assertion - Reason Questions

Each question contains STATEMENT-1 (Assertion) and STATEMENT (Reason). Each question has 4 choices (a), (b), (c) and (d) out of which ONLY ONE is correct, choose the correct option.

21. STATEMENT-1: In a Class of 12 students, 5 are boys and the rest are girls then probability that a student selected will be a girl is $\dfrac{7}{12}$.

because

STATEMENT-2: Probability of an event $= \dfrac{Number\,of\,\,favouble\,outcomes}{Total\,Number\,of\,\,possible\,outcomes}$

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explain for Statement-1
(b) Statement-1 is True, Statement-2 is True; Statement-2 is NOT a correct explanation for Statement-1
(c) Statement-1 is True, Statement-2 is False
(d) Statement-1 is False, Statement-2 is True

22. STATEMENT-1: A die is thrown once then the probability of getting a number 5 or $6 = \dfrac{1}{3}$

because

STATEMENT-2: The probability of getting '9' on throwing two dice is $\dfrac{1}{9}$

(a) Statement-1 is True, Statement-2 is True, Statement-2 is a

correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True, Statement-2 is NOT a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

23. STATEMENT-1: A die is thrown once then the probability of getting a number is $\frac{1}{2}$

because

STATEMENT-2: The probability of getting a number between 3 and 6 is $\frac{1}{3}$

(a) Statement-1 is True, Statement-2 is True, Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True, Statement-2 is NOT a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

24. STATEMENT-1: IN a cricket match with Pakistan, Indian team has to choose a captain out of the following players.

1. Sehwag 2. Dravid 3. Sachin 4. Saurav Ganguly 5. Anil Kumble the probability that Sarav Ganguly will be selected as captain of them is $\frac{1}{5}$

because

STATEMENT-2: If A and B are mutually exclusive events, so that $A \cap B = \phi$ then $P(A \cup B) = P(A) + P(B)$

(a) Statement-1 is True, Statement-2 is True, Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True, Statement-2 is NOT a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

25. STATEMENT-1: The sum of the probabilities all elementary events of an explanation is 1.

because

STATEMENT-2: A Bag contains 6 Black, 7 Red and 2 White balls. A ball is drawn from the bag at random then the probability that the ball drawn is red is $\dfrac{7}{15}$

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is NOT a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

SECTION – III
Linked Comprehension Type

This section contains paragraphs. Based on the paragraph multiple choice questions have to be answered. Each question has 4 choices (a), (b), (c) and (d), out of which ONLY ONE is correct, choose the correct option.

Paragraph for Question Nos. 26 to 43

26. The probability that the number on the card is a number less than 14

(a) $\dfrac{1}{2}$ (b) $\dfrac{3}{25}$ (c) $\dfrac{9}{100}$ (d) $\dfrac{2}{25}$

27. The probability that the number on the card is a number which is a perfect square

(a) $\dfrac{1}{2}$ (b) $\dfrac{3}{25}$ (c) $\dfrac{9}{100}$ (d) $\dfrac{2}{25}$

28. The probability that the number on the card is a Prime Number less than 20 is

(a) $\dfrac{1}{2}$ (b) $\dfrac{3}{25}$ (c) $\dfrac{9}{100}$ (d) $\dfrac{2}{25}$

Paragraph for Question Numbers 29 to 31

Two dice, one blue and one grey, are thrown at the same time, write down all the possible out come then

29. The probability that the sum of the two numbers appearing on the top of the dice is 8.

(a) $\dfrac{1}{2}$ (b) $\dfrac{5}{36}$ (c) $\dfrac{1}{4}$ (d) $\dfrac{1}{8}$

30. The probability that the sum of the two numbers appearing on the top of the dice is 13.

(a) $\dfrac{5}{36}$ (b) $\dfrac{1}{2}$ (c) 0   (d) $\dfrac{1}{4}$

31. The probability that the sum of the two numbers appearing on the top of the dice is less than or equal to 12.

(a) 1   (b) $\dfrac{1}{2}$ (c) $\dfrac{1}{3}$ (d) $\dfrac{1}{4}$

Paragraph for Question Numbers 32 to 34

There are 5 green, 6 black and 7 white balls in a bag. A ball is drawn at random from the bag then the probability that it may be

32. For a white ball

(a) $\dfrac{7}{18}$ (b) $\dfrac{11}{18}$ (c) $\dfrac{2}{3}$ (d) $\dfrac{1}{2}$

33. For either a green or black ball

(a) $\dfrac{7}{18}$ (b) $\dfrac{11}{18}$ (c) $\dfrac{2}{3}$ (d) $\dfrac{1}{2}$

34. For not a black ball

    (a) $\dfrac{7}{18}$ (b) $\dfrac{11}{18}$ (c) $\dfrac{2}{3}$ (d) $\dfrac{1}{2}$

Paragraph for Question Numbers 35 to 37

A bag contains 12 balls out of which x are white then

35. If one ball is drawn at random, what is the probability that it will be a white ball?

    (a) $\dfrac{1}{4}$ (b) $\dfrac{2}{3}$ (c) $\dfrac{3}{5}$ (d) $\dfrac{1}{6}$

36. If 6 more white ball are put in bag, the probability of drawing a white ball double that in 35 than the value of x?

    (a) 3   (b) 4   (c) 5   (d) 7

37. If three balls are drawn at random what is the probability that all are not whit balls?

    (a) $\dfrac{1}{4}$ (b) $\dfrac{3}{4}$ (c) $\dfrac{2}{3}$ (d) $\dfrac{1}{2}$

Paragraph for Question Numbers 38 to 40

An Urn contains 6 oranges, 7 apples and 11 mangoes. A fruit is drawn at random. What is the probability of drawing

38. An Orange?

    (a) $\dfrac{1}{4}$ (b) $\dfrac{11}{24}$ (c) $\dfrac{3}{4}$ (d) $\dfrac{17}{24}$

39. A mango?

    (a) $\dfrac{1}{4}$ (b) $\dfrac{11}{24}$ (c) $\dfrac{3}{4}$ (d) $\dfrac{17}{24}$

40. An apple or a mango?

    (a) $\dfrac{1}{4}$ (b) $\dfrac{11}{24}$ (c) $\dfrac{3}{4}$ (d) $\dfrac{17}{24}$

This section contains Matrix-Match Type questions. Each question contains statement given in two columns, which have to be matched. Statements (A, B, C, D) in Column I have to be matched with statements (p, q, r, s) in Column II. The answers to these questions have to be appropriately bubbled as illustrated in the following example.

If the correct matches are A-p, A-s, B-q, B-r, C-p, C-q and D-s, then the correctly bubbled matrix should be as follows:

41. If A and B are two events then

Column I	Column II
(a) $P(A \cup B)$	(p) $P(A) + P(B) - P(A \cup B)$
(b) $P(A)$	(q) $P(A \cap B) + P(\overline{A} \cap \overline{B})$
(c) $P(B)$	(r) $1 - P(A)$
(d) $P(\overline{A})$	(s) $P(A \cap B) + P(A \cap \overline{B})$

42. One Card is drawn from a well-shuffled deck of 52 cards. Then probability of getting.
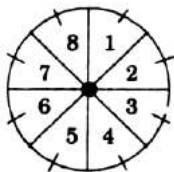
Column I	Column II
(a) a king of red colour	(p) $\dfrac{1}{52}$
(b) a face card	(q) $\dfrac{1}{26}$
(c) the jack of hearts	(r) $\dfrac{3}{13}$

(d) The Queen of diamonds   (s) $\dfrac{3}{26}$

43. A game of chance consists of spinning an arrow which comes to rest pointing at one of the numbers 1, 2, 3,4, 5, 6, 7, 8 (See Fig.), and these are equally outcomes. What is the probability that it will point at?

Column I	Column II
(a) 8	(p) 1
(b) an odd number	(q) $\dfrac{3}{4}$
(c) A number greater than 2	(r) $\dfrac{1}{2}$
(d) A number less than	(s) $\dfrac{1}{8}$

44. A die is thrown once than the probability of getting

Column I	Column II
(a) a prime number	(p) 1
(b) a number lying between	(q) $\dfrac{3}{4}$
2 and 6	
(c) an odd number	(r) 0
(d) An even number	(s) $\dfrac{1}{3}$

45. On tossing three coins simultaneously than the probability of getting.

(a) 3 tails	(p) $\dfrac{3}{8}$
(b) 2 tails	(q) $\dfrac{1}{8}$

(c) 2 heads and 1 tail   (r) $\dfrac{7}{8}$

(d) No tail   (s) $\dfrac{5}{8}$