

Time : 1 Hour 30 Minute

STD 10 Maths
Chapter Based Test

Total Marks : 50

Section A

* Choose the right answer from the given options. [1 Marks Each] [7]

- One card is drawn at random from a well-shuffled deck of 52 cards. What is the probability of getting a 6?
(A) $\frac{3}{26}$ (B) $\frac{1}{52}$ (C) $\frac{1}{13}$ (D) None of these
- There are 20 tickets numbered as 1, 2, 3, ..., 20 respectively. One ticket is drawn at random. what is the probability that the number on the ticket drawn is a multiple of 5?
(A) $\frac{1}{4}$ (B) $\frac{1}{5}$ (C) $\frac{2}{5}$ (D) $\frac{3}{10}$
- If P(E) denotes the probability of an E then:
(A) $P(E) < 0$ (B) $P(E) < 1$ (C) $0 \leq P(E) \leq 1$ (D) $-1 \leq P(E) \leq 1$
- The probability of throwing a number greater than 2 with a fair die is:
(A) $\frac{2}{5}$ (B) $\frac{5}{6}$ (C) $\frac{1}{3}$ (D) $\frac{2}{3}$
- If a number x is chosen from the numbers 1, 2, 3, and a number y is selected from the numbers 1, 4, 9. Then, $P(xy < 9)$
 - $\frac{7}{9}$
 - $\frac{5}{9}$
 - $\frac{2}{3}$
 - $\frac{1}{9}$
- If the probability of winning a game 0.4 then the probability of losing it, is:
 - 0.96
 - $\frac{1}{0.4}$
 - 0.6
 - None of these
- Three coins are tossed simultaneously. What is the probability of getting exactly two heads?
 - $\frac{1}{2}$
 - $\frac{1}{4}$
 - $\frac{3}{8}$
 - $\frac{3}{4}$

* A statement of Assertion (A) is followed by a statement of Reason (R). [3]
Choose the correct option.

8. **Directions:** In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

Let A and B be two independent events.

Assertion: If $P(A) = 0.3$ and $P(A \cup \bar{B}) = 0.8$, then $P(B)$ is $\frac{2}{7}$

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

- Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- Both Assertion and Reason are true and Reason is not the correct explanation of Assertion.
- Assertion is true but Reason is false.
- Assertion is false but Reason is true.

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

Assertion: Card numbered as 1, 2, 3 beves 15 are put in a box and mixed throughly, one card is then drawn at random. The probability of drawing an even number is a

Reason: For any event E, we have $0 \leq P(E) \leq 1$.

- If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- If both Assertion and Reason are true and Reason is not the correct explanation of Assertion.
- If Assertion is true but Reason is false.
- If Assertion is false but Reason is true.

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

Assertion: The probability of getting a prime number, When a die is throw n once is $\frac{2}{3}$

Reason: Prime numbers on a die are 2, 3, 5.

- If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- If both Assertion and Reason are true and Reason is not the correct explanation of Assertion.
- If Assertion is true but Reason is false.
- If Assertion is false but Reason is true.

* **Fill in the blanks with correct alternative. [1 Marks Each]**

[2]

11. The probability of an event that cannot happen is _____. Such an event is called _____.

12. The probability of an event that is sure to happen, is _____.

* **Answer the following questions in one sentence. [1 Marks Each]**

[2]

13. In a simultaneous throw of pair of dice, find the probability of getting: 2 will come up at least once.

14. A black die and a white die are thrown at the same time. Write all the possible outcomes. What is the probability? Of obtaining a total more than 9?

Section B

* Given section consists of questions of 2 marks each.

1. Gopi buys a fish from a shop for his aquarium. The shopkeeper takes out one fish at random from a tank containing 5 male fish and 8 female fish. What is the probability that the fish taken out is a male fish?



2. 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.
3. A card is drawn at random from a pack of 52 cards. Find the probability that the card drawn is:
A black king.
4. A card is drawn at random from a pack of 52 cards. Find the probability that the card drawn is:
The ace of spades.
5. What is the probability that a number selected at random from the number 1, 2, 2, 3, 3, 3, 4, 4, 4, 4 will be their average?

Section C

* Given section consists of questions of 3 marks each.

1. A die is thrown once. Find the probability of getting
 - i. a prime number;
 - ii. a number lying between 2 and 6
 - iii. an odd number.
2. A bag contains 5 black, 7 red and 3 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is:
 - i. Red.
 - ii. Black or white.
 - iii. Not black.
3. A bag contains 8 red, 6 white and 4 black balls. A ball is drawn at random from the bag. Find the probability that the drawn ball is:
 - i. Red or white.
 - ii. Not black.
 - iii. Neither white nor black.
4. A card is drawn at random from a well-shuffled pack of 52 cards. Find the probability of getting
 - i. A red king.
 - ii. A queen or a jack.

Section D

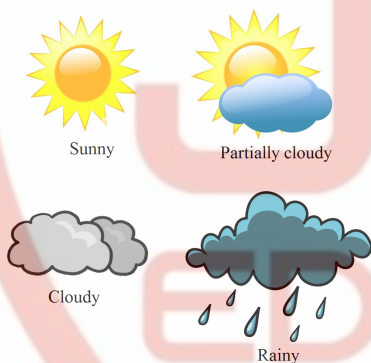
* Given section consists of questions of 5 marks each.

- A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is:
 - Red?
 - Not red?
- A box contains 25 cards numbered from 1 to 25. A card is drawn at random from the bag. Find the probability that the number on the drawn card is:
 - Divisible by 2 or 3.
 - A prime number.

Section E

* Case study based questions

- In the month of May, the weather forecast department gives the prediction of weather for the month of June. The given table shows the probabilities of forecast of different days:



| Days | Days | Cloudy | Partially cloudy | Rainy |
|--------------------|---------------|--------|------------------|-------|
| Probability | $\frac{1}{2}$ | x | $\frac{1}{5}$ | y |

If the forecast is 100% correct for June, then answer the following questions.

- The number of sunny days in June, is?
- If the number of cloudy days in June is 5, then $x = ?$
- The probability that the day is not rainy will be ?

Or

If the sum of x and y is $\frac{3}{10}$, then the number of rainy days in June will be ?

॥ ज्ञानं एव श्रमस्य पुंजः ॥