

SSC Board Exam March 2022

Class : 10th

Maths-1

Total Marks : 40

Time : 2hr

Q.1 (A) : Choose the correct alternatives and write its alphabet with subquestion number:

1. Which one is the Quadratic equation ?

(A) $\frac{5}{x} - 3 = x^2$ (B) $x(x + 5) = 2$ (C) $n - 1 = 2n$ (D) $\frac{1}{x^2}(x + 2) = x$

2. First four term of an A.P are ,..., whose first term is -2 and the common difference is -2.

(A) -2, 0, 2, 4 (B) -2, 4, -8, 16 (C) -2, -4, -6, -8 (D) -2, -4, -8, -16

3. For simultaneous equations in variables x & y , $D_x = 49$, $D_y = -63$, $D = 7$, then what is the value of y ?

(A) 9 (B) 7 (C) -7 (D) -9

4. Which number can not represent a probability ?

(A) 1.5 (B) $\frac{2}{3}$ (C) 15% (D) 0.7

Q.1 (B) : Solve the following subquestions:

1. To draw a graph of $4x + 5y = 19$, find y when $x = 1$.

2. Determine whether 2 is root of quadratic equation $2m^2 - 5m = 0$ or not .

3. Write the second and the third terms of an A.P, whose first term is 6 and the common difference is -3.

4. Two coins are tossed simultaneously . Write the sample space S.

Q.2 (A) : Complete the following activities and rewrite it : (Any two)

1. Complete the following activity to find the value of determinant.

Activity :

$$\begin{vmatrix} 2\sqrt{3} & 9 \\ 2 & 3\sqrt{3} \end{vmatrix} = 2\sqrt{3} \times \square - 9 \times \square$$

$$= \square - 18$$

$$= \square$$

2. Complete the following activity to find the 19th term of an A.P , 7, 13, 19, 25,

Activity :

Given A.P : 7, 13, 19, 25,

Here, the first term $a = 7$; $t_{19} = ?$

$$t_n = a + (\quad)d$$

$$\therefore t_{19} = 7 + (19 - 1) \square$$

$$\therefore t_{19} = 7 + \square$$

$$\therefore t_{19} = \underline{\quad}$$

3. If one die is rolled, complete the following activity to find the probability of an event to get a prime number on the upper face.

Activity :

One die is rolled.

S is the sample space.

$$S = \{ \quad \quad \quad \}$$

$$\therefore n(S) = 6$$

Event A : A prime number on the upper faces.

$$A = \{ \quad \quad \quad \}$$

$$\therefore n(A) = 3$$

$$\therefore P(A) = \frac{\quad}{n(S)}$$

$$\therefore P(A) = \underline{\quad}$$

Q.2. (B) : Solve the following subquestions: (Any four)

1. To solve the following simultaneous equation by cramer's rule, Find the values of D_x and D_y . $3x + 5y = 26$; $x + 5y = 22$
2. A box contain 5 Red, 8 blue and 3 Green pens. Rutuja wants to pick up a pen at random. What is the probability that the pen picked up is blue ?
3. Find the sum of first n even natural numbers.
4. Solve the Quadratic equation $x^2 + x - 20 = 0$ by factorization method.
5. Find the values of $(x + y)$ and $(x - y)$ for the following simultaneous equations:
 $49x - 57y = 172$; $57x - 49y = 252$

Q.3. (A) : Complete the following activities and rewrite it : (Any one)

1. One of the roots of the equation $kx^2 - 10x + 3 = 0$ is 3 . Complete the following activity to find the value of k .

Activity :

One of the roots of the equation $kx^2 - 10x + 3 = 0$ is 3.

Put $x = \underline{\quad}$ in the above equation.

$$k(\quad)^2 - 10 \times (\quad) + 3 = 0$$

$$\therefore (\quad) - 30 + 3 = 0$$

$$\therefore 9k = \underline{\quad}$$

$$\therefore k = \underline{\quad}$$

2. A card is drawn at random from a pack of well-shuffled 52 playing cards. Complete the following activity to find the probability that the card drawn ① Event A : is an ace card . ② Event B : is a spade card.

Activity :

S is a sample space.

$$\therefore n(S) = 52$$

Event A : The card drawn is an ace.

$$\therefore n(A) = \underline{\quad}$$

$$P(A) = \underline{\quad}$$

$$\therefore P(A) = \frac{\quad}{52}$$

$$\therefore P(A) = \frac{\quad}{13}$$

Event B : The card drawn is a spade.

$$\therefore n(B) = \underline{\quad}$$

$$P(B) = \frac{n(B)}{n(S)}$$

$$\therefore P(B) = \frac{\quad}{4}$$

Q.3.(B) : Solve the following subquestions : (Any two)

1. To solve the following simultaneous equation by graphical method,
 $x + 3y = 7$; $2x + y = -1$
2. There is an auditorium with 27 rows of seats. There are 20 seats in the first row, 22 seats in the second row, 24 seats in the third row, and so on. Find the how many total seats are there in the auditorium ?
3. The sum of the present ages of Manish and Savita is 31 years. Manish's age 3 years ago was 4 times the age of Savita at that time . Find their present ages.
4. Solve the Quadratic equation $x^2 + 10x + 2 = 0$ by formula method.

Q.4. Solve the following subquestions : (Any two)

1. If 460 is divided by a natural number, then the quotient is 2 more than nine times the divisor and the remainder is 5. Find the quotient and the divisor.
2. If the 9th term of an A.P is zero, then prove that the 29th term is double the 19th term.
3. The perimeter of an isosceles triangle is 24 cm. The length if its congruent sides is 13 cm less than twice the length of its base. Find the length of all sides of the triangle.

Q.5. Solve the following subquestions : (Any one)

1. A bag contain 8 red, and some blue balls. One ball is drawn at random from the bag. If the ratio of the probability of getting red ball and blue ball is 2 : 5, then find the number of blue balls.
2. The measures of the angles of the triangle are in A.P. the measure of the smallest angle is a five times of the common difference. Find the measures of all angles of the triangle. (Assume the measures of angles as a , $a + d$, $a + 2d$).

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