PARISHRAM PUBLICATIONS

Std.: X (English) | Mathematics Part - I | Marks: 40

Date: 14-Dec-2019 | Parishram Academy | Time: 2 hrs

Chapter: All

Note:-

Q.1 A) Solve Multiple choice questions. **(4)**

1) If a share is at premium, then -

a. Market value > Face value

b. Market value = Face value

c. Market value < Face value

d. Market value ≤ Face value

2) Find the roots of quadratic equation :

$2x^2 - 2\sqrt{3x} + 3 = 0$

a. x = 3 b. x = $\sqrt{3}$ c. x = $\sqrt{6}$ d. x = 2

3) If P(A) = 0.75, then what is the probability of P(A')?

a. 0.75 b. 0.25 c. 0 d. 1

4) For a frequency distributions, $\Sigma f_i = 60$ and $\Sigma f_i x_i = 1260$ then the mean ($\bar{x}$) is ?

a. 20 b. 22 c. 23 d. 21

B) Solve the following questions. **(4)**

1) How many possibilities are there in each of the following?

One number from 10 to 20 is written on each card. Select one card randomly.

2) Write an A.P. whose first term is a and common difference is d in each of the following. a = 6, d = - 3

3) Find the values of the following determinants.

$N = \begin{vmatrix} -8 & -3 \\ 2 & 4 \end{vmatrix}$

4) Find the value of the discriminant for the quadratic equation. $x^2 + 4x + 1 = 0$.

Q.2 A) Complete the following Activities. (Any Two) **(4)**

1) Complete the table to solve the following simultaneous equations.

x - y = 4

x	_____	- 1	0
y	0	_____	- 4
(x, y)	_____	_____	_____

2) First term and common difference of an A.P. are 6 and 3 respectively ; find S_{27}.

a = 6, d = 3, S_{27} = ?

$\therefore$ $S_n = \frac{n}{2}$[_____ + (n - 1)d]

$\therefore$ $S_{27} = \frac{27}{2}$[12 + (27 - 1) _____]

$= \frac{27}{2} \times$ _____

$= 27 \times 45$

$\therefore$ _____

3) Complete the following table by writing suitable numbers and words.

Sr. No.	Face value	Type	Market Value
(1)	Rs. 100	Par	.....
(2)	.....	Premium Rs. 500	Rs. 575
(3)	Rs. 10	.....	Rs. 5

B) Solve the following questions. (Any four) **(8)**

1) Solve the following quadratic equations by factorization.

$6\sqrt{3}x^2 + 7x = \sqrt{3}$

2) Form the given table, find the median number of rooms occupied per day in a hotel:

Number of rooms occupied	Number of days (f)	(c.f.) (less than type)
0 - 10	5	5
10 - 20	15	20
20 - 30	25	45
30 - 40	10	55
40 - 50	5	60

3) M/s. Jay Chemicals purchased a liquid soap having taxable value Rs. 8000 and sold it to the consumers for the taxable value Rs. 10,000. Rate of GST is 18%. Find the CGST and SGST payable by M/s. Jay Chemicals.

4) Six faces of a die are as shown below.

A	B	C	D	E	A

If the die is rolled once, find the probability of -

(1) 'A' appears on upper face. (2) 'D' appears on upper face.

5) Solve the following simultaneous equations.

$x + 7y = 10$; $3x - 2y = 7$

Q.3 A) Complete the following Activity (Any one) **(3)**

1) The difference between the roots of the equation $x^2 - 13x + k = 0$ is 7 find k.

Comparing $x^2 - 13x + k = 0$ with $ax^2 + bx + c = 0$

$\therefore$ $a = 1, b = -13, c = k,$

Let α and β be the roots of the equation.

$\therefore$ $\alpha + \beta =$ _____ $= -\frac{(-13)}{1} =$ _____ ... I

But $\alpha - \beta = 7$ ... (given) II

$2\alpha = 20$ ... [adding (I) and (II)]

$\therefore \quad \alpha =$ _____

$\therefore \quad 10 + \beta = 13$ ... [from (I)]

$\therefore \quad \beta = 13 - 10$

$\therefore \quad \beta =$ _____

But $\alpha \times \beta =$ _____

$\therefore \quad 10 \times 3 = \frac{k}{1}$

$\therefore \quad k =$ _____

2) Find four consecutive terms in an A.P. whose sum is 88 and the sum of the 1st and the 3rd terms is 40.

Let the four consecutive terms in the A.P. be

a - 3d, a - d, a + d, and a + 3d.

From the first condition,

_____ = 88

$\therefore \quad 4a = 88$

$\therefore a = \frac{88}{4}$ ... (1)

$\therefore a =$ _____

From the second condition,

_____ = 40

$\therefore \quad 2a - 2d = 40$

$\therefore \quad a - d = 20$

$22 - d = 20$

$\therefore \quad d =$ _____

Four consecutive terms are

a - 3d = 22 - 3(2) = 16

a - d = _____ = 20

a + d = 22 + 2 = 24

a + 3d = _____ = 28

B) Solve the following questions. (Any two) **(6)**

1) Mr.Amol purchased 50 shares of Face Value Rs. 100 when the Market value of the share was Rs. 80. Company had given 20% dividend. Find the rate of return on investment.

2) Solve the following quadratic equation.

$5m^2 + 2m + 1 = 0$

3) Solve the following simultaneous equations using Cramer's method.

$4x + 3y - 4 = 0$; $6x = 8 - 5y$

4) Write sample space 'S' and number of sample point n(S) for each of the following experiments. Also write events A, B, C in the set form and write n(A), n(B), n(C).

Two digit numbers are formed using digits 0, 1, 2, 3, 4, 5 without repetition of the digits.

Condition for event A : The number formed is even

Condition for event B : The number formed is divisible by 3.

Condition for event C : The number formed is greater than 50.

Q.4 Solve the following questions. (Any two) **(8)**

1) Solve the following simultaneous equations graphically.

$x + y = 5$; $x - y = 3$

2) The following table shows the average rainfall in 150 towns. Show the information by a frequency polygon.

Average rainfall (cm)	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100
No. of towns	14	12	36	48	40

3) In a bicycle shop, number of bicycles purchased and choice of their colours was as follows. Find the measures of sectors of a circle to show the information by a pie diagram.

Colour	White	Black	Blue	Grey	Red	Total
Number of bicycles	10	9	6	7	4	36

Q.5 Solve the following questions. (Any one) **(3)**

1) Solve: $\frac{4}{x} + \frac{5}{y} = 7; \frac{3}{x} + \frac{4}{y} = 5$

2) On the world environment day tree plantation programme was arranged on a land which is triangular in shape. Trees are planted such that in the first row there is one tree, in the second row there are two trees, in the third row three trees and so on. Find the total number of trees in the 25 rows.