

Nayak's Tutorials

Year : 2025 - 26
Std : X SSC

Sample Paper 2
Algebra

Marks : 40
Duration : 2 hr

Q.1 A) Solve Multiple choice questions.

(4)

- 1) $x - 2y = 4$ and $2x - 4y = 12$ represents.
a. Two lines on xy graph b. One line in xy graph
c. Three lines in xy graph d. Four lines in xy graph
- 2) In on A.P. first two terms are -3, 4 then 21st term is
a. -143 b. 143 c. 137 d. 17
- 3) The persons of O - blood are 40%. The classification of persons based on blood groups is to be shown by a pie diagram. What should be the measures of angle for the persons of O - blood group?
a. 114° b. 140° c. 104° d. 144°
- 4) Determine nature of roots of the following quadratic equation:
 $5x^2 - 4x - 3 = 0$
a. Real and equal b. Real and unequal c. Not real d. None of these

B) Solve the following questions.

(4)

- 1) If $15x + 17y = 21$ and $17x + 15y = 11$, then find the value of $x + y$.
- 2) If $\sum f_i d_i = 108$ and $\sum f_i = 100$, find $d = ?$
- 3) Decide if the following is quadratic equation or not ?
 $9y^2 + 5 = 0$
- 4) Complete the following table using given information.

Sr No.	FV	Premium/ discount/ par	MV
i	Rs. 100	Premium Rs. 10	a
ii	Rs. 25	b	Rs. 16
iii	c	at par	Rs. 5

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

(4)

- 1) Form the quadratic equation from its roots. 0 and 7

Let α and β be the roots of the quadratic equation.

Let $\alpha = \underline{\hspace{2cm}}$ and $\beta = 7$

$\therefore \alpha + \beta = \underline{\hspace{2cm}} = 7$ and

$$\alpha \times \beta = 0 \times 7 = 0$$

Then required quadratic equation is

$$\therefore x^2 - \underline{\hspace{2cm}}x + \underline{\hspace{2cm}} = 0$$

$$\therefore x^2 \underline{\hspace{2cm}} + 0 = 0$$

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

Sr. No.	Face value	Type	Market Value
(1)	Rs. 100	At Par	_____
(2)	Rs. 75	_____	Rs. 125
(3)	Rs. 10	_____	Rs. 5
(4)	Rs. 100	Premium = 10%	_____

- 3) Find the values of following determinants.

$$\begin{vmatrix} \frac{7}{3} & \frac{5}{3} \\ \frac{3}{2} & \frac{1}{2} \end{vmatrix}$$

$$= \left(\frac{7}{3} \times \frac{1}{2} \right) - \underline{\hspace{2cm}}$$

$$= \frac{7}{6} - \frac{15}{6}$$

$$= \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

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

(8)

- Two coins are tossed simultaneously, Find the probability of getting at least one head.
- Solve : $5m^2 - 22m - 15 = 0$
- 1, 7, 13, 19... Find the 18th term of this A.P.
- The following table shows classification of number of workers and the number of hours they work in a software company. To find the median of the number of hours they work, complete the following activity.

Daily No. of hours	8 - 10	10 - 12	12 - 14	14 - 16
Number of workers	150	500	300	50

- If $D_x = -18$, $D_y = -15$ and $D = 3$ are the values of the determinants for certain simultaneous equation in x and y, find x,y.

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

(3)

- The area under different crops in a certain village is given below. Represent it by a pie diagram :

Crop	Jowar	Wheat	Sugar cane	Vegetables
Area (in hectares)	40	60	50	3
Crop	Area (in hectares)	Measure of the central angle		
Jowar	40	$\frac{40}{180} \times 360^\circ = 80^\circ$		
Wheat	60	_____ $^\circ = 120^\circ$		
Sugar cane	50	_____ $^\circ = 100^\circ$		
Vegetables	30	_____ $^\circ = 60^\circ$		

- 2) The amount with Mukund is Rs. 50 more than amount with Sagar. The product of the amount is 15000, then find the amounts with each of them.

Let the amount with Sagar be Rs. x .

$\therefore$ The amount with Mukund is Rs. $(x + 50)$

According to given condition

$$\text{_____} = 15000$$

$$\therefore \text{_____} = 15000$$

$$\therefore x^2 + 50x - 15000 = 0$$

$$\therefore x^2 \text{ _____} - 15000 = 0$$

$$\therefore x(x + 150) - 100(x + 150) = 0$$

$$\therefore x + 150 = 0 \text{ or } x - 100 = 0$$

$$\therefore x = \text{_____} \text{ or } x = 100$$

$x \neq -150$ amount in rupees can not be negative.

$$\therefore x + 100 \text{ and } x + 50 = 100 + 50 = \text{_____}$$

$\therefore$ The amount with Sagar is _____ and amount with Mukund is _____

B) Solve the following questions. (Any two)

(6)

- 1) A two digit number is to be formed from the digits 0, 1, 2, 3, 4. Repetition of the digits is allowed. Find the probability that the number so formed is a -
 (1) prime number (2) multiple of 4 (3) multiple of 11.

2) In an A.P. 19th term is 52 and 38th term is 128, find sum of first 56 terms.

3) Solve the following quadratic equation.

$$x^2 - \frac{3x}{10} - \frac{1}{10} = 0$$

4) Draw a pie diagram to represent the following information :

Item	Bread	Fruit bread	Biscuits	Cakes
Sale (in Rs.)	200	120	60	100

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

(8)

1) Six year before, the age of mother was equal to the square of her son's age. Three year hence, her age will be thrice the age of her son then.
Find the present ages of the mother and son.

2) The following table shows frequency distribution of number of trees planted by students in the school.

No. of Trees Planted	0-10	10-20	20-30	30-40	40-50
No. of students	30	70	100	70	40

Find the mode of trees planted.

3) Solve the following simultaneous equations.

$$\frac{10}{x+y} + \frac{2}{x-y} = 4 ; \frac{15}{x+y} - \frac{5}{x-y} = -2$$

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

(3)

1) 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 dice are rolled simultaneously,

Event A : The sum of the digits on upper faces is a multiple of 6.

Event B : The sum of the digits on the upper faces is minimum 10.

Event C : The same digit on both the upper faces.

2) A survey was conducted for 180 people in a city. 70 ate Pizza, 60 ate burgers and 50 ate chips. Draw a pie diagram for the given information.