

Nayak's Tutorials

Year : 2025 - 26
Std : X SSC

Sample Paper 3
Algebra

Marks : 40
Duration : 2 hr

Q.1 A) Solve Multiple choice questions.

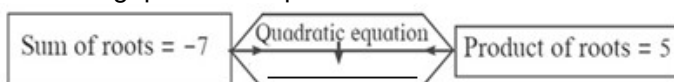
(4)

- From the given data calculate y.
 $Dx = 39, D = 13, Dy = 52$
a. 12 b. 14 c. 11 d. 4
- If $n(A) = 10$ and $n(S) = 100$, then $P(A) = ?$
a. 10 b. $\frac{1}{10}$ c. 100 d. 0.01
- For an A.P., if $a = 10$ and $d = 3$, find t_n .
a. $3n + 7$ b. $7n + 3$ c. $-3n + 7$ d. $-7n - 3$
- The classmark of class 6-10 is
a. 6 b. 10 c. 8 d. 16

B) Solve the following questions.

(4)

- Fill in the gaps and complete.



- If 50 shares of FV Rs. 100 each are purchased for MV Rs. 120. Find the sum invested.
- The cost of the book is 5 rupees more than twice the cost of a pen. Show this using linear equations by taking Cost of book(x) and cost of a pen(y).
- Find first term of the sequence $t_n = 3n - 2$

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

(4)

- Complete the following table by using given information:

Sr. No.	Face value	Share is at	Market Value
(1)	Rs. 100	At Par	_____
(2)	_____	Premium = Rs. 500	Rs. 575
(3)	Rs. 10	_____	Rs. 5
(4)	Rs. 200	Discount Rs. 50	_____

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

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

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

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

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

$$= 27 \times 45$$

$\therefore$ _____

- 3) Complete the table for the line $y = 8 - x$.

x	3	_____
y	_____	9
(x, y)	_____	_____

B) Solve the following questions. (Any four)

(8)

- Which term of an A.P. is 70, if the first term is 120 and the common difference - 5?
- From 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

- Find the purchase price of a share of FV Rs. 100 if it is at premium of Rs. 30. The brokerage rate is 0.3%.
- If (a,3) is the point lying on the graph of the equation $5x + 2y = -4$, Then find a.
- A bag contains 50 cards. Each card bears only one number from 1 to 50. One card is drawn at random from the bag. Write the sample space. Also write the events A, B and find the number of sample points in them.
 - Condition for event A : The number on the card is divisible by 6.
 - Condition for event B : The number on the card is a complete square.

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

(3)

- Find the mean by step deviation method.

Daily Income (in Rs.)	0 - 100	100 - 200	200 - 300	300 - 400	400 - 500
Number of men	12	28	34	41	50

Daily income (in Rs.)	Class mark x_i	$d_i = x_i - A$ $d_i = x_i - 250$	Deviations $u_i = \frac{d_i}{g} = \frac{d_i}{100}$	Frequency (Number of men)	$f_i u_i$
0 - 100	50	-200	-2	12	- 24
100 - 200	150	- 100	- 1	28 - 12 = 16	- 16

200 - 300	_____	_____	0	$34 - 28 = 6$	0
300 - 400	350	100	1	$41 - 34 = 7$	7
400 - 500	450	200	2	$50 - 41 = 9$	18
Total				$\sum f_i = \underline{\hspace{2cm}}$	$\sum f_i u_i =$
					$\quad - 15$

Here, $\sum f_i = \underline{\hspace{2cm}}$, $\sum f_i u_i = - 15$.

$$\therefore u = \frac{\sum f_i u_i}{\sum f_i} = - \underline{\hspace{2cm}}$$

$$\therefore \text{mean}(x) = A + u \cdot g$$

$$\therefore \text{mean}(x) = \underline{\hspace{2cm}}$$

- 2) If the face value of the share is Rs. 100 and market value is Rs. 150. Let the rate of brokerage be 0.5%. What amount should one pay for purchasing 100 such shares? What amount should one receive after selling 100 such shares?

I) At the time of buying shares:

$$\begin{aligned}
 \text{Buying price of 1 share} &= \text{MV} + \text{Brokerage} \\
 &= 150 + 0.5\% \text{ of } 150 \\
 &= 150 + 0.75 \\
 &= \underline{\hspace{2cm}}
 \end{aligned}$$

If someone purchases 100 such shares the total cost is $100 \times 150.75 = \text{Rs. } 15075$.

Here _____ is the share price and _____ is the brokerage paid.

II) At the time of selling shares.

$$\begin{aligned}
 \text{Selling price per share} &= \underline{\hspace{2cm}} \\
 &= 150 - 5\% \text{ of } 150 = 150 - 0.75 \\
 &= \underline{\hspace{2cm}}.
 \end{aligned}$$

If someone sells 100 such shares, he will get,

$$100 \times 150 - \text{Rs. } 75 = \underline{\hspace{2cm}} \text{ after selling 100 such shares.}$$

B) Solve the following questions. (Any two)

(6)

- 1) Solve the quadratic equation by factorisation method: $3x^2 - 2\sqrt{6}x + 2$
- 2) There are three boys and three girls. An environment committee of two is to be formed. Write the sample space S, the number of sample points $n(S)$. Express the following events and find the total number of elements in the following events: A is the event that the

committee should contain at least two girls. B is the event that the committee should contain both the boys. C is the event that there is only one girl in the committee. D is the event that there is at the most one boy in the committee.

- 3) Smt. Malhotra purchased solar panels for the taxable value of Rs. 85,000. She sold them for Rs. 90,000. The rate of GST is 5%. Find the ITC of Smt. Malhotra. What is the amount of GST payable by her?
- 4) In the natural numbers from 10 to 250, how many are divisible by 4?

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

- 1) Ranjana wants to distribute 540 orange equally on her birthday to some students. If there are 30 more students then each would get 3 oranges less, find the number of students.
- 2) A boat takes 8 hours to travel 30 km upstream and 36 km downstream; but it takes 10 hours to travel 36 km upstream and 48 km downstream. Find the speed of the boat in still water and the speed of the stream.
- 3) A frequency distribution table for the production of oranges of some farm owners is given below. Find the mean production of oranges by 'assumed mean' method.

Production (Thousand rupees)	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50
No. of farm owners	20	25	15	10	10

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

1)

Sale ! Sale !! Sale !!! Only for 2 days



I have some analogue wrist watches and some digital wrist watches. I am going to sell them at a discount.

Sale of 1st day

Analogue watch = 11

Digital watch = 6

Received amount = rs. 4330

Sale of the 2nd day

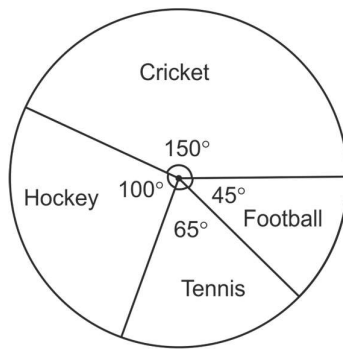
Analogue watch = 22

Digital watch = 5

Received amount = rs. 7330

Find selling price of wrist watch of each type.

2)



Observe the pie diagram.

If the amount spent on football per year is Rs. 9000, answer the following questions :

- What is the total amount spent on sports ?
- What is the amount spent on hockey ?