Seat No. | | | | | | | |

Nayak's Tutorials

Way to Excellence

Date : -

Practice Paper-I

MATHEMATICS – ALGEBRA- PAPER -1

Marks: 40

Duration: 2 Hr.

Q.1 A) Multiple Choice Questions 4

1. If (x,y) = (−1,−2) is the solution of some linear equation in two variable with value of determinant = 14, then what is D_x and D_y?

   a. 14,14 b. −14, −28 c. 14,−28 d. −14,28

2. What is the Probability that the number chosen from 1−50 is a prime number ?

   a. $\frac{8}{25}$ b. $\frac{4}{50}$ c. $\frac{12}{25}$ d. $\frac{2}{5}$

3. Mr. Jaykant purchased shares of FV Rs. 3 at a premium of Rs. 22. How many shares will he get for Rs. 23,000 ?

   a. 840 b. 730 c. 920 d. 1080

4. One of the root of the equation $x^2+mx-5 = 0$ is 2, m=?.

   a. $\frac{1}{3}$ b. $\frac{1}{4}$ c. $\frac{3}{4}$ d. $\frac{1}{2}$

Q 1.B) Answer the following. 4

1. 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

2. Write the equation $x^2+5x = -(3-x)$ in the form $ax^2+bx+c = 0$ and write the values of a,b and c .
3. For an A.P if first two terms are −2 and 5 then 19^{th} term of an A.P is?.
4. For $x + y = 3$; $3x - 2y - 4 = 0$, Calculate D_x and D_y.

Q.2A) Answer the following.(Activity)(Any two) 4

1. Find the probability of getting an ace card and the probability of getting a spade card when a card is selected at random from a pack of 52 playing cards.

Ans; A card is selected at random from a pack of 52 playing cards.

so, n(S) = 52

Total number of aces in a pack of 52 cards = _____

Total number of cards in a pack = 52

Hence, the probability of getting an ace is _____

Total number of spade card in a pack of 52 cards = _____

Total number of cards in a pack = 52

Hence, the probability of getting an ace is _____

2. Form the Quadratic equation from the given roots $2-\sqrt{5}, 2+\sqrt{5}$

Ans: Let $\alpha = 2 + \sqrt{5}$,$\beta = 2 - \sqrt{5}$,

sum of the roots = $\alpha+\beta$ =_____ .....(1)

product of the roots = _____ =_____ .....(2)

Required Quadratic equation is _____

3. 11,8,5,2..... In this A.P which term is number -151?

Ans: Here a = 11, d =_____

we have t_n = a+(n 1)d

_____ _ = 11 +(n 1)_____

-165 = _____

n = 55

4. The sum of father's age and twice the age of his son is 70. If we double the age of the father and add it to the age of his son the sum is 95. Find their present ages.

Ans: Let the present ages of father and son be x years and y years respectively.

According to the first condition,

_____ ...(i)

According to the second condition,

_____ ...(ii)

Multiplying equation (i) by 2,

we get 2x + 4y=140...(iii)

Subtracting equation (ii) from (iii),

we get y = _____

Substituting value of y in eq. (ii)

we get x = _____

Q. 2B)Answer the following. **8**

1. Find the mean of the data given in the following table

Class	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100
Frequency	6	4	5	7	3

2. M/s. Real Paint' sold 2 tins of lustre paint and taxable value of each tin is Rs.2800. If the rate of GST is 28%, then find the amount of CGST and SGST charged in the tax invoice.

3. Write the sample space when 2 dice are tossed simultaneously and write the number of sample points when sum of the digits on the upper face is 7 .

4. Solve $2m(m-24) = 50$ using factorization method.

Q.3A) Answer the following. (Activity)(Any 1) 3

1. Pintu takes 6 days more than those of Nishu to complete certain work. If they work together they finish it in 4 days. How many days would it take to complete the work if they work alone.

Ans: Let the number of days taken by Nishu be x

So, Number of days taken by Pintu will be x+6

Nishu's 1 day work=$\frac{1}{x}$

Pintu's 1 day work=$\frac{1}{x+6}$

Work done together in 4 days=

$\Rightarrow \frac{1}{x} +$

$\Rightarrow \frac{x+6+x}{x^2+6x} =$

$\Rightarrow x^2+6x \quad 8x \quad 24=0$

$\Rightarrow x()+4()=0$

$\therefore x=$

2. 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_iu_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				$\sum f_i$ = _____	$\sum f_iu_i$ = – 15

Here, $\sum f_i$ = _____, $\sum f_iu_i$ = – 15.

$\therefore \quad \bar{u} = \frac{\sum f_iu_i}{\sum f_i}$ = – _____

$\therefore$ mean $(\bar{x})$ = A + $\bar{u}$. g

$\therefore$ mean $(\bar{x})$ = _____

Q.3B) Answer the following. (Any 2) 6

1. Time alloted for the preparation of an examination by some students is shown in the table. Draw a histogram to show the information.

Time (minutes)	60 - 80	80 - 100	100 - 120	120 - 140	140 - 160
No. of students	14	20	24	22	16

2. From three men and two women, environment committee of two persons is to be formed.

Condition for event A : There must be at least one woman member.

Condition for event B : One man, one woman committee to be formed.

Condition for event C : There should not be a woman member.

3. Solve using Formula, $y^2+\frac{1}{2}y = 2$.

Q.4) Answer the following. (Any 2) **8**

1. A wholesaler purchased electric goods for the taxable amount of Rs. 1,50,000. He sold it to the retailer for the taxable amount of Rs. 1,80,000. Retailer sold it to the customer for the taxable amount of Rs. 2,20,000. Rate of GST is 18%. Show the computation of GST in tax invoices of sales. Also find the payable CGST and payable SGST for wholesaler and retailer.

2. Ranjana wants to distribute 540 oranges among some students. If 30 students were more each would get 3 oranges less. Find the number of students.

3. The annual investments of a family are shown in the adjacent pie diagram.

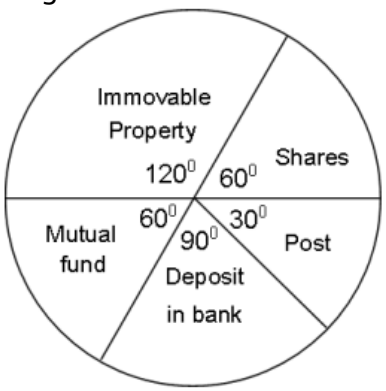
Answer the following questions based on it.

i. If the investment in shares in rs.2000/, find the total investment.

ii. How much amount is deposited in bank ?

iii. How much more money is invested in immovable property than in mutual fund ?

iv. How much amount is invested in post ?



Q.5) Answer the following. (Any 1) **3**

1. Two dice are rolled, write the sample space 'S' and number of sample points n(S). Also find the probability of an event according to the given condition.

(i) Sum of the digits on upper face is a prime number.

(ii) Sum of the digits on the upper face is less than 8.

(iii) Digit on the upper face of the first die is less than the digit on the second die.

2. Find the four consecutive terms in an A.P whose sum is 12 and sum of 3rd and 4th term is 14.

(Assume the four consecutive terms in A.P are a−d, a, a+d, a+2d.)

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