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Subject : Math - I **Total Marks : 40**

Class : X^th **Prelim Question Paper - 2** **Time : 2 Hr.**

Q.1 A. Choose the correct alternative **4**

1) If for any A.P. d = 5 then $t_{18} - t_{13}$ = ...

a) 5 b) 20

c) 25 d) 30

2) Which number cannot represent a probability ?

a) $\frac{2}{3}$ b) 1.5

c) 15 % d) 0.7

3) In the format of GSTIN there are - ----- alpha numerals

a) 15 b) 10

c) 16 d) 9

4) Rate of GST on Brokerage is

a) 5% b) 12%

c) 18% d) 28%

B. Solve of the following sub questions. **4**

1) If n(A) = 2, P(A) = $\frac{1}{5}$, then n(S) = ?

2) To solve x + y = 3; 3x – 2y – 4 = 0 by determinant method find D.

3) Check the sequence is A.P. or not if A.P. Find the common difference

$3, 3+\sqrt{2}, 3+2\sqrt{2}, 3+3\sqrt{2}, \ldots$

4) A ready-made garment shopkeeper gives 5% discount on the dress of ₹ 1000 and charges 5% GST on the remaining amount, then what is the purchase price of the dress for the customer ?

Q.2 A. Solve Any TWO of the following **4**

1) From a 'Road safety committee' of two from two boys (B_1, B_2) and two girls (G_1, G_2) complete the following activity to write the sample space.

a) Committee of 2 boys = $\{B_1, B_2\}$

b) Committee of 2 girls = { }

c) Committee of one boy and one girl = { }

sample space s = { }

2) Complete the following activity to solve the simultaneous equations

5x + 3y = –11,

2x + 4y = – 10 by cramer's rule.

$D = \begin{vmatrix} 5 & 3 \\ 2 & 4 \end{vmatrix} = 14$

$Dx = \begin{vmatrix} -11 & 3 \\ -10 & 4 \end{vmatrix} =$ ☐

$Dy = \begin{vmatrix} 5 & -11 \\ 2 & -10 \end{vmatrix} =$ ☐

$x = \frac{\square}{\square} =$ ☐

$y = \frac{\square}{\square} =$ ☐

3) If x = 5 is the root of $kx^2 - 14x - 5 = 0$ then find the value of k.

One root of $kx^2 - 14x - 5 = 0$ is ☐

$\therefore$ Put x = $\square$ in the above equation

$\therefore$ k $\square^2$ – 14 $\square$ – 5 = 0

$\therefore$ 25k – 70 – 5 = 0

$\therefore$ 25k – $\square$ = 0

$\therefore$ 25k = $\square$

k = $\frac{\square}{\square}$ = 3

Q. 2 B. Solve Any FOUR of the following 8

1) Solve by cramer's rule

$4m - 2n = -4$;

$4m - 3n = 16$

2) Two coins are tossed simultaneously.

Find the probability of getting only Head.

3) The following table shows percentages of demands for different fruits registered with fruit vendor show the information by pie diagram

Fruits	Mango	Sweet lim e	Apples	Chickoo	Oranges
Percentages of demand	30	15	25	20	10

4) Find the fourth term from the end of the A.P. –11, –8, –5, ---, 49

5) Courier service agent charged total ₹ 590 to courier a parcel from Nashik to Nagpur. In the tax invoice taxable value is ₹ 500 on which CGST is ₹ 45 and SGST is ₹ 45. Find the rate of GST charged for this service.

Q. 3 A) Complete the following activity

(Any ONE) 3

1) $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$ to solve this quadratic equation by factorisation, complete the following activity.

$\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$

$\sqrt{2}x^2 + \square + \square + 5\sqrt{2} = 0$

$x(\square) + \sqrt{2}(\square) = 0$

$(\square) + (x + \sqrt{2}) = 0$

$(\square) = 0$ or $(x + \sqrt{2}) = 0$

$x = \square$ or $x = -\sqrt{2}$

$\therefore \square$ and $-\sqrt{2}$ are roots of the equation.

2) The monthly expendiuture of a family on different items is shown in the following table. Calculate the related central angles and draw a pie chart.

Different Items	Percentage of expenditure	Measure of Central angle
Food	40	$\frac{400}{100} \times 360 = \square$
Clothing	20	$\square \times \square = \square$
Houses rent	15	$\square \times \square = \square$
Education	20	$\square \times \square = \square$
Expenditure	05	$\square \times \square = \square$
Total	**100**	**360^0**

Q. 3 B) Solve Any TWO from the following subquestion. 6

1) A two digit number is formed with digits 2, 3, 4, 7, 9 without repetition. What is probability that the number is formed

i) an odd Number

ii) a multiple of 5

2) Find the value of

i) $\begin{vmatrix} 5 & 3 \\ -7 & 0 \end{vmatrix}$

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

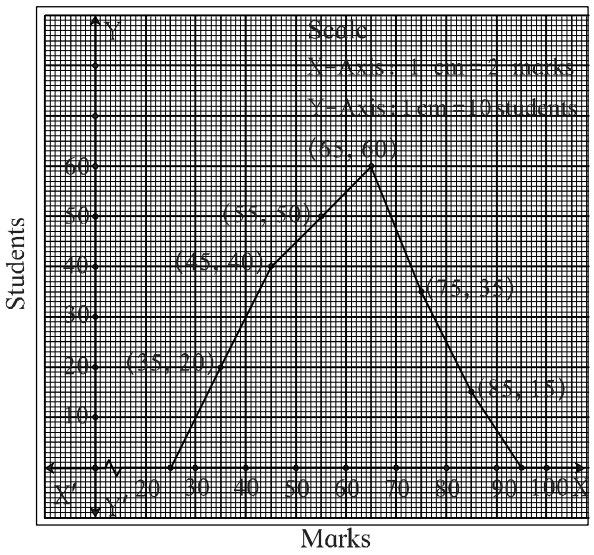
3) Solve by factorisation method

$m^2 - 11 = 0$

4) The sum of the first n natural numbers is given by $s = \frac{n(n+1)}{2}$ Find n if the sum is 276.

Q. 4 Solve Any TWO from the following subquestion. **8**

1) Observe the following frequency polygon and write the answers of the questions below it.



i) Which class has the maximum number of students?

ii) Write the classes having zero frequency.

iii) What is the class-mark of the class, having frequency of 50 students?

iv) Write the lower and upper class limits of the class whose class mark is 85.

2) If the sum of first p terms of an A.P. is equal to the sum of first q terms then show that the sum of its first (p + q) terms is zero. ($p \neq q$)

3) A die is thrown once find the probability of getting

(i) a prime number

(ii) A number lying between 2 and 6

(iii) an odd number

Q. 5 Solve any ONE from the following subquestion **3**

1) The denominator of a fraction is 4 more than twice its numerator. Denominator becomes 12 times the numerator, if both the numerator and the denominator are reduced by 6. Find the fraction.

2) The following table shows the frequency table of daily wages of 50 workers in a trading company. Find the mean wages of a worker, by assumed mean method.

Daily Wages (Rs)	200-240	240-280	280-320	320-360	360-400
Frequency (No. of workers)	5	10	15	12	8

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