SAMPLE PAPER
TERM-I (2025-26)
CLASS-X (MATHEMATICS)

Maximum Marks:80   **Time: 3 hours**
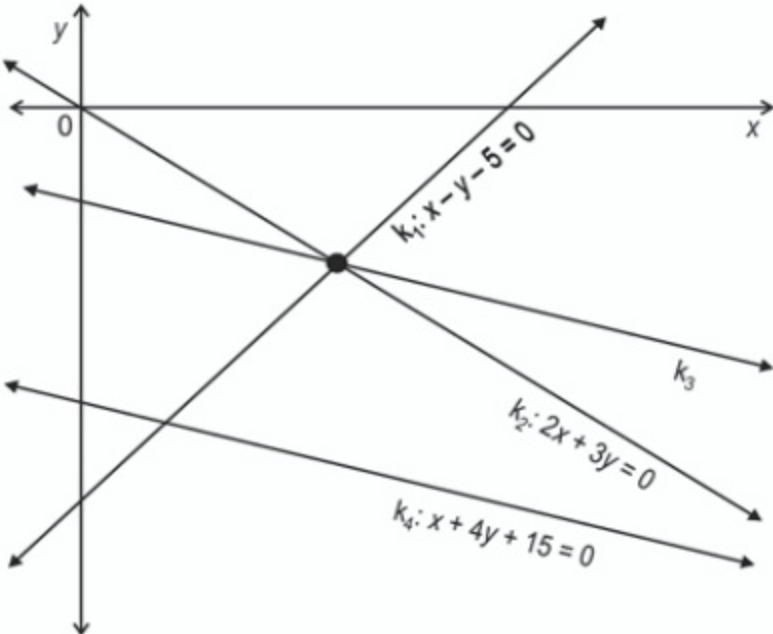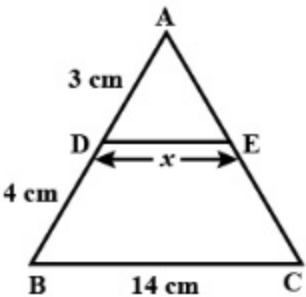
General Instructions:

Read the following instructions carefully and follow them:
1. This question paper contains 38 questions. All Questions are compulsory.
2. This Question Paper is divided into 5 Sections A, B, C, D and E.
3. In Section A, Question numbers 1-18 are multiple choice questions (MCQs) and question no.19 and 20 are Assertion- Reason based questions of 1 mark each.
4. In Section B, Question numbers 21-25 are very short answer (VSA) type questions, carrying 02 marks each.
5. In Section C, Question numbers 26-31 are short answer (SA) type questions, carrying 03 marks each.
6. In Section D, Question numbers 32-35 are long answer (LA) type questions, carrying 05 marks each.
7. In Section E, Question numbers 36-38 are case study-based questions carrying 4 marks each with sub parts of the values of 1, 1 and 2 marks each respectively.
8. There is no overall choice. However, an internal choice in 2 questions of Section B, 2 questions of Section C and 2 questions of Section D has been provided. An internal choice has been provided in all the 2 marks questions of Section E.
9. Draw neat and clean figures wherever required. Take π =22/7, wherever required if not stated.
10. Use of calculators is not allowed.
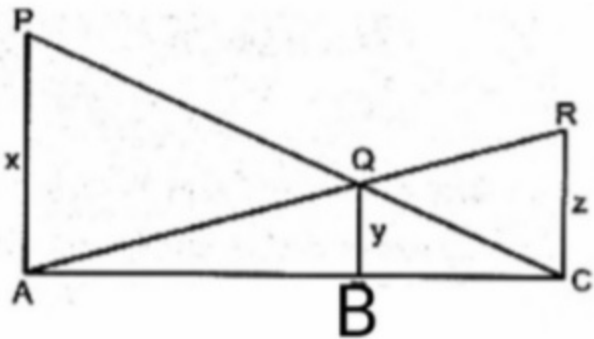
(Section-A)
Section A consists of 20 questions of 1 mark each.

Q.No.	Questions	Marks
1.	The largest number that will divide 398, 436 and 542 leaving remainders 7, 11 and 15 respectively is (A) 17 (B) 11 (C) 34 (D) 45	1

2.	The two opposite vertices of a square are (-1,2) and (3,2), then the coordinates of other two vertices are (A) (0,0), (1,1) (B) (1,1), (0,1) (C) (0,1), (1,4) (D) (1,4), (1,0)	1
3.	If R(-1,1) is the midpoint of the line segment joining P(-3,a) and Q(1,a+4) then the value of a is (A) 1 (B) 0 (C) -1 (D)2	1
4.	Shown below is a graph with four straight lines. It is given that lines k_1, k_2 and k_3 intersect at exactly one point and line $k_3 \| k_4$ Which of the following could be the equation of line k_3? (A) x+y−1=0 (B) 2x+4y+5=0 (C) 3x−4y−11=0 (D) 2x+8y+35=0	1
5.	If x = 1 is a common root of the equations $ax^2 + ax + 3 = 0$ and $x^2 + x + b = 0$, then ab is equal to (A) 3 (B) 3.5 (C) 6 (D) −3	1
6.	In figure , if DE∥BC, then the value of x is equal to 	1

	(A) 8 cm (B) 10 cm (C) 5cm (D) 6cm	
7.	Δ ABC is such that AB = 3 cm, BC = 2cm, CA = 2.5 cm. If ΔDEF~ΔABC and EF = 4 cm, then perimeter of ΔDEF is (A) 7.5 cm (B) 15 cm (C) 22.5 cm (D) 30 cm	1
8.	A number is chosen at random from -5 to 5, then the probability that square of this number is less than or equal to 1 is: (A) $\frac{3}{11}$ (B) $\frac{1}{11}$ (C) $\frac{4}{11}$ (D) $\frac{5}{11}$	1
9.	The value of k for which the equation $x^2 + 2(k+1)x + k^2=0$ has equal roots is (A) -1 (B) 1 (C) $\frac{-1}{2}$ (D) $\frac{1}{2}$	1
10.	The perimeter of triangle whose vertices are (0, 4) , (0, 0) and (3, 0) is (A)5 units (B) 12 units (C) 10 units (D) $7+\sqrt{5}$ units	1
11.	Given that $\sec\theta = \sqrt{2}$, the value of $\frac{1+\tan\theta}{\sin\theta}$ is (A) $\sqrt{2}$ (B) $2\sqrt{2}$ (C) $3\sqrt{2}$ (D) 2	1
12.	If $2\sin x = \sqrt{3}$ then $\frac{\tan x -1}{\tan x+1}$ is (A) $2 - \sqrt{3}$ (B) $2+ \sqrt{3}$ (C) $\frac{\sqrt{3}-1}{2}$ (D) $\frac{\sqrt{3}+1}{2}$	1
13.	In triangles ABC and DEF, $\angle B = \angle E$, $\angle F =\angle C$ and AB = 3DE. Then the two triangles are (A) congruent but not similar (B) similar but not congruent (C) neither congruent nor similar (D) congruent as well as similar	1
14.	A girl calculates that the probability of her winning the first prize in a lottery is 0.08.If 6000 tickets are sold,how many tickets has she bought? (A) 40 (B)240 (C) 480 (D) 750	1
15.	The value of q for the pair of linear equations $\frac{p}{2} + 3q = 6$ and $2p - 2q = 10$ is (A) 1 (B) 4 (C) 6 (D) 16	1
16.	Three bells ring at intervals of 4, 7 and 14 minutes. All the three rang at 6 am. They will ring together again at (A) 6:07 am (B) 6:14 am (C) 6:28 am (D) 6:25 am	1
17.	Two dice are thrown at the same time and the product of numbers appearing on them is noted. The probability that the product is a prime number is (A) $\frac{1}{3}$ (B) $\frac{1}{5}$ (C) $\frac{1}{6}$ (D) $\frac{5}{6}$	1

18.	If $x\sin^3 A + y\cos^3 A = \sin A \cos A$ and $x \sin A = y \cos A$ then $x^2 + y^2$ is equal to	1
	(A) 0 (B) $\frac{1}{2}$ (C) 1 (D) $\frac{3}{2}$	

	DIRECTIONS: In the question number 19 and 20, a statement of **Assertion (A)** is followed by a statement of **Reason (R).**	
	Choose the correct option:	
	(A). (A)Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)	
	(B). (B)Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A)	
	(C). (C)Assertion (A) is true but reason (R) is false.	
	(D). (D)Assertion (A) is false but reason (R) is true.	

19.	**Assertion (A)**: $x^2 + 4x + 5$ has two real zeroes. **Reason (R)**: A quadratic polynomial can have at the most two zeroes.	1
20.	**Assertion (A)**: Two sides and the perimeter of one triangle are respectively three times the corresponding sides and the perimeter of another triangle then the two triangles are similar. **Reason (R)**: If in two right triangles, one of the acute angles of one triangle is equal to an acute angle of the other triangle then the two triangles will be similar.	1

<div align="center">

(Section-B)
Section B consists of 5 questions of 2 marks each.

</div>

21. (A)	If m and n are the zeroes of the polynomial $3x^2 + 5x - 2$ then, form a quadratic polynomial whose zeroes are 2m and 2n.	2
	OR	
(B)	Find the zeroes of the polynomial $v^2 + 4\sqrt{3}v - 15$ and verify the relationship between the zeroes and the coefficients of the polynomial.	

22.	Solve for x and y:
	      217x + 131 y= 913
	      131x + 217 y = 827
		2

23.	The centre of a circle is (2a, a-7).If the circle passes through the point (11, -9) and has the diameter $10\sqrt{2}$ units, then find the value of a.	2
24.	In the given figure, prove that $p = \dfrac{q\,r}{r+s}$	2
25. (A)	Evaluate: $(sin^4 60° + sec^4 30°) - 2(cos^2 45° - sin^2 90°)$	2
(B)	**OR** If $cosec\,(A - B) = 2\ and\ \cot\,(A+B) = \dfrac{1}{\sqrt{3}}, 0° < (A+B) \le 90°$, A >B then find the values of A and B.	

<div align="center">

Section-C
Section C consists of 6 questions of 3 marks each.

</div>

26.	Prove that $\sqrt{3}$ is an irrational number.	3
27. (A)	One says to his friend, "Give me hundred rupees, I shall then become twice as rich as you". The other replies, "If you give me ten, I shall be six times as rich as you". What is the amount of their (respective) capital? **OR**	3
(B)	After five years, the age of Sudama will be three times that of his son. Five years ago he was seven times that of the son. Find their present ages.	
28.	A teacher on attempting to arrange the students for a mock drill in the form of square found that 24 students were left over. When he increased the size of the square by 1 student, he found that he was short of 25 students. Find the number of students.	3
29.	If a rainbow is represented by the polynomial p(x)= x^2+ (a+ 1)x +b, whose zeroes are 2 and -3, find the values of a and b. Also, name the shape of the rainbow.	3
30.	E is a point on the side CB produced of an isosceles triangle ABC with AB = AC. D is a point on base BC such that AD$\perp$BC and EF$\perp$ AC. Prove that $\triangle$ ABD ∼ $\triangle$ ECF.	3

31.(A)	The line segment joining the points A(2,1) and B(5,-8) is trisected by the points P and Q, where P is nearer to A. If the point P also lies on the line 2x - y + k = 0, then find k.	3
	OR	
(B)	P(-6,4) and Q(2,10) are the end points of a diameter of a circle. Find the radius of the circle. O(x,y) be the centre of the circle, find the relation between x and y.	

<div align="center">

Section-D
Section D consists of 4 questions of 5 marks each

</div>

32.	A railway half ticket costs half the full fare and the reservation charge is the same on half ticket as on full ticket. One reserved first class ticket from Mumbai to Ahmedabad costs ₹ 216 and one full and one half reserved first class ticket costs ₹ 327. What is the basic first class full fare and what is the reservation charge?	5
33.	Two taps running together can fill a tank in $3\frac{1}{3}$ hours. If one tap takes 3 hours more than the other to fill the tank, then how much time will each tap take to fill the tank ?	5
	OR	
	A motor boat whose speed is 18 km/hr in still water takes one hour more to go 24 km upstream then to return downstream to the same spot. Find the speed of the stream?	
34.	If $\sec\theta - \tan\theta = x$, show that $\sec\theta + \tan\theta = \frac{1}{x}$. Hence, find the values of $\cos\theta$ and $\sin\theta$.	5
	OR	
	If $\tan\theta + \sin\theta = m$ and $\tan\theta - \sin\theta = n$, then show that $m^2 - n^2 = 4\sqrt{mn}$	
35.	In the given figure,PA, QB and RC are each perpendicular to AC. If AP = x, BQ = y and CR = z, then prove that $$\frac{1}{y} = \frac{1}{x} + \frac{1}{z}$$	5

36. Ahilya was thrilled to know that the football tournament is fixed within a monthly time frame from 20thJuly to 20th August 2023 and for the first time in the FIFA Women's World Cup's history, two nations host the tournament in 10 venues. Her father felt that the game can be better understood if the position of players is represented as points on a coordinate plane.

In the field picture, O is the origin.

Note:- The picture is a reference only.

(i) At an instance, the midfielders and forwards formed a parallelogram. Find the position of the central midfielder(D) if the position of other players who formed the parallelogram are : A(-1,-1), B(3,0) and C(5,2).   **1**

(ii) If defensive midfielder A(-1,-1), attacking midfielder B(3,0) and Striker E(a,b) lie on the same straight line and B is equidistant from A and E, find the position of E.   **1**

(iii)

  (A)   Check if the Goalkeeper G(-8,0), Sweeper H(-5,-2) and Wing-back K(-2,-4) fall on the same straight line.   **2**

<div align="center">OR</div>

  (B)   Check if the Full- back J(-4,3) and Centre – back I(-4,1) are equidistant from Forward C(5,2) and if C is the mid point of the line segment IJ.   **2**

| 37.	A seminar is being conducted by an Educational Organization, where the participants will be educators of different subjects. The number of participants in Hindi, English and Mathematics are 60, 84 and 108 respectively.	
	(i) (A) In each room the same number of participants are to be seated and all of them are of the same subject. Find the maximum number of participants that can be accommodated in each room.	2
	OR	
	(B) Find the LCM of 60,84 and 108.	2
	(ii) What is the total number of rooms required during the event?	1
	(iii) Find the product of HCF and LCM of 60, 84 and 108.	1
38.	During May and June the temperatures rise to a maximum of 39°C (102°F) around the end of May, making it the hottest month of the year. In the month of May the weather forecast department gives the weather for the month of June. The given table shows the probabilities of forecasts of different days.	
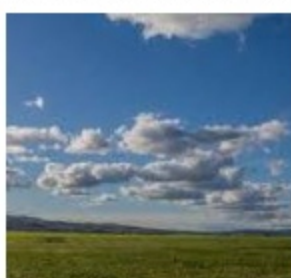
Sunny   cloudy   partially cloudy   Rainy

Day	Sunny	Cloudy	Partially cloudy	Rainy
Probability	$\frac{1}{2}$	X	$\frac{1}{5}$	Y

(i) Find the number of sunny days in June.   1

	(ii) Find the probability that it is a cloudy day if there are 5 cloudy days.	1
	(iii) (A) Find the probability that it is not a rainy day.	2
	OR	
	(B) If the sum of the probability of the cloudy and the rainy day is $\frac{3}{10}$, then find the number of rainy days in June?	2