

MATHEMATICS STANDARD – Code No.041
PRACTICE QUESTION PAPER - II CLASS – X (2025-26)
As per Pattern of CBSE Official Sample Paper 2025-2026
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Maximum Marks: 80

Time: 3 hours

General Instructions:

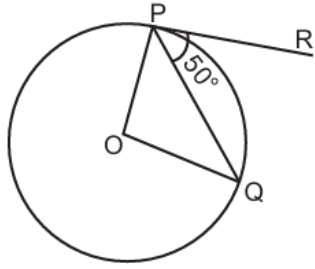
Read the following instructions carefully and follow them:

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 questions 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 $\pi = \frac{22}{7}$ wherever required if not stated.
10. Use of calculators is not allowed.

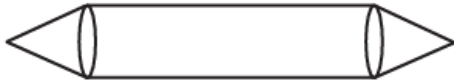
Section A: Consists of 20 questions of 1 mark each

1. Which of the following is a solution to the equation $2x^2 + 13x - 7 = 0$?
(A) 2 (B) -1 (C) -7 (D) $\frac{1}{2}$
2. If a, b, c, d, e and f are in AP, then e – c is equal to
(A) $2(c - a)$ (B) $2(f - d)$ (C) $2(d - c)$ (D) $d - c$
3. In figure if O is centre of a circle, PQ is a chord and the tangent PR at P makes an angle of 50° with PQ, then $\angle POQ$ is equal to

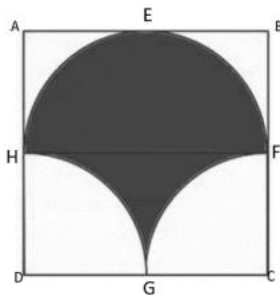
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- (A) 100° (B) 80° (C) 90° (D) 75°
4. The graph of a polynomial $p(x)$ passes through the points $(-8,0)$, $(0,-10)$, $(4,-20)$ and $(6,0)$. The zeroes of the polynomial are
 (A) 6,0 (B) 4, 6 (C) - 10,-20 (D) -8,6
5. The shape of a gilli, in the gilli-danda game (see Fig.), is a combination of

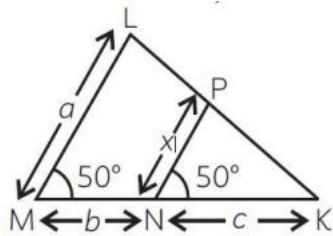


- (A) two cylinders (B) a cone and a cylinder
 (C) two cones and a cylinder (D) two cylinders and a cone
6. The mean and median of the same data are 24 and 26 respectively. The value of mode is:
 (A) 23 (B) 26 (C) 25 (D) 30
7. The point which divides the line segment of points $P(-1, 7)$ and $(4, -3)$ in the ratio of 2:3 is:
 (A) $(-1, 3)$ (B) $(-1, -3)$ (C) $(1, -3)$ (D) $(1, 3)$
8. In the figure given below, ABCD is a square of side 14 cm with E, F, G and H as the mid points of sides AB, BC, CD and DA respectively. The area of the shaded portion is



- (A) 44cm^2 (B) 49 cm^2 (C) 98 cm^2 (D) $49\frac{\pi}{2}\text{ cm}^2$
9. A 5 m long ladder is placed leaning towards a vertical wall such that it reaches the wall at a point 4 m high. If the foot of the ladder is moved 1.6 m towards the wall, then the distance by which the top of the ladder would slide upwards on the wall is:
 (A) 2 m (B). 1.2 m (C) 0.8 m (D) 0.5 m

10. If $\cot A = \frac{5}{6}$ then $\frac{3 \cos A + \sin A}{\sin A - 6 \cos A}$ is equal to
 (A) $\frac{7}{8}$ (B) $\frac{-7}{8}$ (C) $\frac{-5}{4}$ (D) $\frac{5}{4}$
11. AOBC is a rectangle whose three vertices are A (0, 3), O (0, 0) and B (5, 0). The length of its diagonal is
 (A) 5 (B) 3 (C) $\sqrt{34}$ (D) 4
12. Two dice are thrown simultaneously. What is the probability of getting doublet?
 (A) $\frac{1}{36}$ (B) $\frac{1}{6}$ (C) $\frac{5}{6}$ (D) $\frac{11}{36}$
13. If a tower 6m high casts a shadow of $2\sqrt{3}$ m long on the ground, then the sun's elevation is:
 (A) 60° (B) 45° (C) 30° (D) 90°
14. In the given figure, find the value of x in terms of a, b and c.



- (A) $\frac{ac}{b+c}$ (B) $\frac{ab}{b+c}$ (C) $\frac{ac}{b}$ (D) $\frac{ab}{c}$
15. The pair of linear equations $2x + 3y = 5$ and $4x + 6y = 10$ is
 (A) inconsistent (B) consistent (C) dependent consistent (D) none of these
16. ABCD is a trapezium with $AD \parallel BC$ and $AD = 4\text{cm}$. If the diagonals AC and BD intersect each other at O such that $AO/OC = DO/OB = 1/2$, then $BC =$
 (A) 6cm (B) 7cm (C) 8cm (D) 9cm
17. The probability that a non-leap year selected at random will contain 53 Sundays is:
 (A) $\frac{1}{7}$ (B) $\frac{2}{7}$ (C) $\frac{3}{7}$ (D) $\frac{5}{7}$
18. The surface areas of two spheres are in the ratio 1 : 2. The ratio of their volume is:
 (A) $\sqrt{2} : 1$ (B) $1 : 2\sqrt{2}$ (C) 1 : 8 (D) 1 : 4

Instructions for questions 19 and 20

Two statements are given below - one labelled Assertion (A) and the other labelled Reason (R). Read the statements carefully and choose the option that correctly describes statements (A) and (R).

19. Assertion (A): L.C.M. and H.C.F. of a and 20 are 100 and 10 respectively, then $a = 50$.
 Reason (R): $\text{L.C.M} \times \text{H.C.F.} = \text{First number} \times \text{Second number}$

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is true but Reason (R) is false.

(D) Assertion (A) is false but Reason (R) is true.

20. Assertion (A): $\sin^2 59^\circ + \cos^2 59^\circ = 1$

Reason (R): For any Value of A, $\sin^2 A + \cos^2 A = 1$

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is true but Reason (R) is false.

(D) Assertion (A) is false but Reason (R) is true.

Section B: Consists of 5 questions of 2 marks each

21. A ladder 15 m long just reaches the top of a vertical wall. If the ladder makes an angle of 60° with the wall, then find the height of the wall. Give your answer upto 1 decimal place (take $\sqrt{3} = 1.73$)

22. (A) If the 7th and 9th terms of an AP are -33 and -25 respectively. What is its 8th term?

OR

(B) Check whether -150 is a term of the AP: 11, 8, 5, 2

23. Prove that $4 + \sqrt{3}$ is irrational given that $\sqrt{3}$ is irrational.

24. The length of the minute hand of a clock is 10.5 cm. Find the area swept by it when it moves from 5:03 a.m. to 5:53 a.m.

25. (A) Show that the points A(2,4), B(5, $4 + 3\sqrt{3}$) and C(8, 4) are the vertices of an equilateral triangle.

OR

(B) Find a relation between x and y such that the point (x, y) is equidistant from the points (7, 1) and (3, 5).

Section C: Consists of 6 questions of 3 marks each

26. If α and β are the zeroes of the polynomial $3x^2 - 8x + 2$, then find the polynomial whose zeroes are α^2 and β^2 .

27. (A): In an acute angled triangle ABC, if $\sin(A + B - C) = \frac{1}{2}$ and $\cos(B + C - A) = \frac{1}{\sqrt{2}}$, find $\angle A$, $\angle B$ and $\angle C$.

OR

(B): Prove that $\frac{\sin \theta}{(\sec \theta + \tan \theta - 1)} + \frac{\cos \theta}{(\operatorname{cosec} \theta + \cot \theta - 1)} = 1$

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28. The product of two numbers is 2028 and their H.C.F. is 13. Find all possible pairs of such numbers.

29. (A): Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the center.

OR

(B): Prove that the length of tangents drawn from an external point to a circle are equal.

30. Two coins are tossed simultaneously. What is the probability of getting

(i) At least one head?

(ii) At most one tail?

(iii) A head and a tail?

31. (A). A train covered a certain distance at a uniform speed. If the train would have been 6 km/h faster, it would have taken 4 hours less than the scheduled time. And, if the train were slower by 6 km/hr; it would have taken 6 hours more than the scheduled time. Find the length of the journey.

OR

(B). Anuj had some chocolates, and he divided them into two lots A and B. He sold the first lot at the rate of ₹2 for 3 chocolates and the second lot at the rate of ₹1 per chocolate, and got a total of ₹400. If he had sold the first lot at the rate of ₹1 per chocolate, and the second lot at the rate of ₹4 for 5 chocolates, his total collection would have been ₹460. Find the total number of chocolates he had.

Section D: Consists of 4 questions of 5 marks each

32. (A). 100 surnames were randomly picked up from a local telephone directory and the frequency distribution of the number of letters in the English alphabets in the surnames was obtained as follows:

Number of letter	1-4	4-7	7-10	10-13	13-16	16-19
Number of Surnames	6	30	40	16	4	4

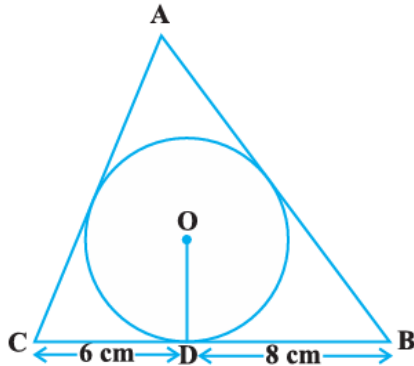
Determine the median number of letters in the surnames. Find the mean number of letters in the surnames? Also, find the modal size of the surnames.

OR

(B) The median of the distribution given below is 14.4. Find the values of x and y, if the sum of frequency is 20. Also find the mean.

Class Interval	0-6	6-12	12-18	18-24	24-30
Frequency	4	x	5	y	1

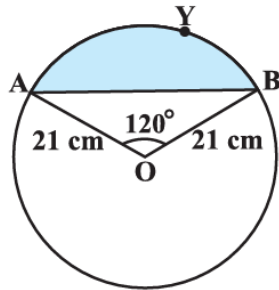
33. A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively (see Fig.). Find the sides AB and AC.



34. (A). The entry ticket of an amusement park for adults and children is Rs 480 and Rs 150 respectively. From sale of 450 tickets a total of Rs 1,33,500 was collected.
 (i) Find the number of children who attended the park and also the number of adults of adults who attended the park.
 (ii) Find the total amount collected if the number of adults and children attending was increased by 50 each.

OR

- (B). Solve the following system of equations graphically for x and y: $3x + 2y = 12$; $5x - 2y = 4$. Find the co-ordinates of the points where the lines meet the y-axis.
 35. Find the area of the segment AYB shown in figure, if radius of the circle is 21 cm and $\angle AOB = 120^\circ$. Also find the Area of major sector AOB.



Section E: Consists of 3 case based study questions of 4(1+1+2) marks each

36. Answer the following questions based on the information given below.
 Rohan and Mohini start a passing game with 3 marbles, in the first pass Rohan gives mohini 3 marbles. Then Mohini adds 4 marbles in the second pass and gives 7 marbles to Rohan, he then adds 4 more marbles and gives 11 marbles to Mohini in the third pass, who again adds 4 more marbles and gives 15 marbles to Rohan and this goes on

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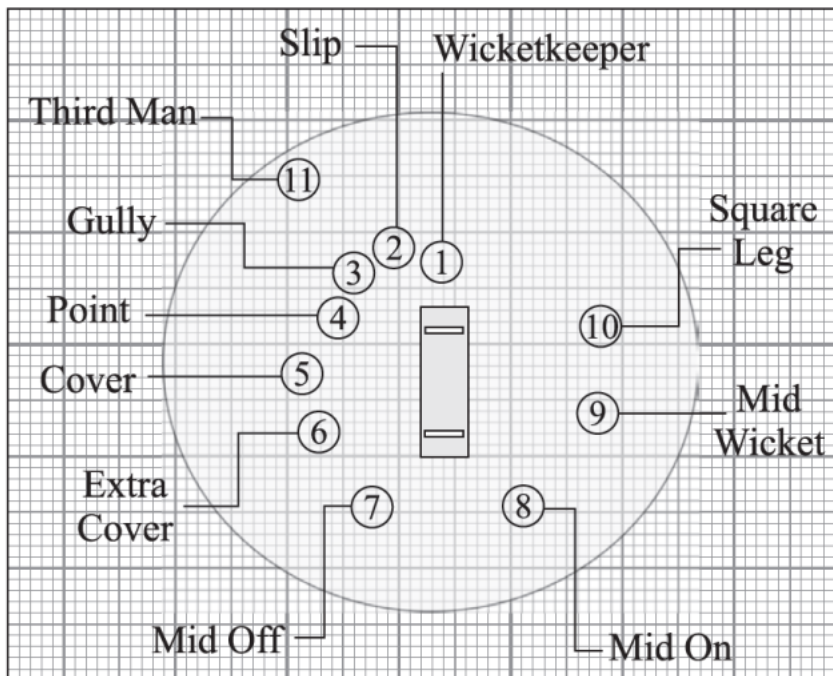
- (i) How many marbles were passed by Rohan to Mohini in 9th pass?
- (ii) In which pass were 55 marbles passed?
- (iii) (A) If the first person to receive more than 100 marbles wins the game, then who wins the game? Show your work

OR

- (iii) (B) Their friend Asna is taking note of the number of marbles passed in each turn and adding all the numbers to reach a sum. Find the sum she reaches after 17 turns.

37. Answer the following questions based on the information given below.

In the sport of cricket the Captain sets the field according to a plan. He instructs the players to take a position at a particular place. There are two reasons to set a cricket field—to take wickets and to stop runs being scored. The following graph shows the position of players during a cricket match.



- (i). Find the distance between the Wicket keeper W(0,2) and Mid On O(2, -4)
- (ii) The Batsman B, is standing at the midpoint of the line joining the Mid-Wicket D(4, -4) of the line joining Third Man T (-4, 4). What are the co-ordinates of the batsman B.
- (iii) (A) Find the coordinate of the point on y-axis which is equidistant from the points representing the players at Cover C(-2, 9) and Mid On O(2, -4).

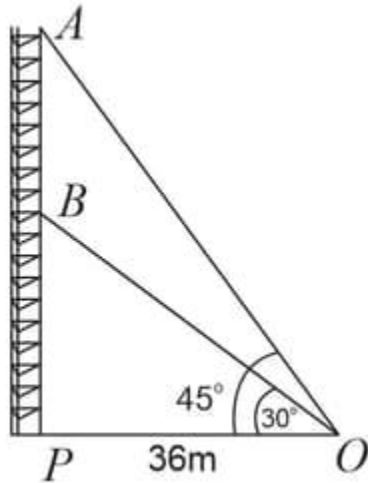
OR

- (iii) (B) Find the ratio in which x-axis divides the line segment joining the points Extra Cover E(-3, -3) and Fine Leg F(2, 7).

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38. Answer the following questions based on the information given below.

Radio towers are used for transmitting a range of communication services including radio television. The tower will either act as an antenna itself or support one or more antennas on its structure. They are among the tallest human-made structures and are of 2 main types: guyed and self-supporting structures.



On a similar concept, a radio station was built in two sections A and B. Tower is supported by wires from a point O. Distance between the base of the tower and point O is 36 m. From point O, the angle of elevation of the top section B is 30° and the angle of elevation of the top section A is 45°

- (i) What is the length of the wire structure from the point O to the top of section B?
- (ii) What is the height of the section A from the base of the tower?
- (iii) (A) Find the distance AB.

OR

- (iii) (B) Find the area of triangle OPB.