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PRACTICE PAPER 1
CLASS 9
SESSION 2025 - 26

General Instructions:

1. This question paper has five sections A to E.
2. Section A has 20 MCQs carrying 1 mark each.
3. Section B has 5 questions carrying 2 marks each.
4. Section C has 6 questions carrying 3 marks each.
5. Section D has 4 questions carrying 5 marks each.
6. Section E has 3 case based integrated units of assessment (4 marks each) with sub – parts of the values 1, 1 and 2 marks each.
7. All questions are compulsory. However, an internal choice in 2 questions of 5 marks, 2 questions of 3 marks and 2 questions of 2 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E.

SECTION – A

(Section A consists of 20 questions of 1 mark each)

1. The class marks of a frequency distribution are given as 15, 20, 25…….. The class corresponding to the class mark 20 is:

(A) 12.5 – 17.5 (B) 17.5 – 22.5 (C) 18.5 – 21.5 (D) 19.5 – 20.5

2. The mirror image of a point (–4, 5) in y-axis has the coordinates:

(A) $(4, 5)$ (B) $(-4, 5)$ (C) $(4, -5)$ (D) $(-4, -5)$

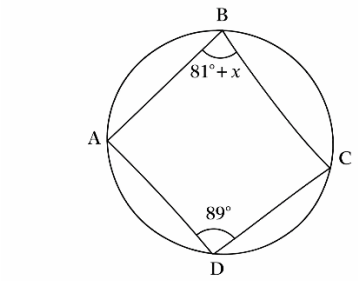
3. Diagonals AC and BD of a parallelogram $ABCD$ intersect each other at point O. If $\angle DAC = 32°, \angle AOB = 70°$, then $\angle DBC$ is equal to:

(A) $24°$ (B) $32°$ (C) $38°$ (D) $86°$

4. The ratio of volume and surface area of a sphere of unit radius is:

(A) 4 : 3 (B) 3 : 4 (C) 1 : 3 (D) 3 : 1

5. For what value of x in the figure, points A, B, C, D are concyclic?



(A)9° (B) 10° (C) 11° (D) 12°

6. If $a^2 + b^2 + c^2 = 90$ and $a + b + c = 20$, then the value of $ab + bc + ca$ is:

(A)155 (B) 160 (C) 165 (D) 170

7. If two complementary angles are such that two times the measure of one angle is equal to three times the measure of the other. The measure of smaller angle is:

(A)36° (B) 54° (C) 72° (D) 108°

8. If the area of an equilateral triangle is $16\sqrt{3}\ cm^2$, then the perimeter of triangle is:

(A)16 cm (B) 18 cm (C) 24 cm (D) 26 cm

9. Euclid stated that all right angles are equal to each other in the form of:

(A)an axiom (B) a definition (C) a postulate (D) a theorem

10. Frequency polygon is constructed by plotting frequency of the class interval and the:

(A)upper limit of the class
(B)lower limit of the class
(C)class mark
(D)any value of the class

11. The angles of a triangle are in the ratio 1 : 2 : 1. Then the triangle is:

(A)right angled and scalene triangle
(B)obtuse angled and scalene triangle
(C)right angled and isosceles triangle
(D)acute angled and isosceles triangle

12. The value of k if $(x - 1)$ is a factor of the polynomial $p(x) = x^2 + (k + 1)x - 1$:

(A)-1 (B) 1 (C) -3 (D) 3

13. The figure obtained by joining the mid points of the sides of a square, taken in order is:

(A)a parallelogram
(B)a rhombus
(C)a rectangle
(D)a square

14. $\sqrt[3]{\left(\sqrt{2^{-2}}\right)}$ is equal to:

(A) $2^{-\frac{1}{6}}$ (B) $2^{\frac{1}{6}}$ (C) 2^{6} (D) 2^{-6}

15. If AN and MD are equal and parallel chords of a circle with centre O. The length of equal chords is $16\ cm$ each and diameter of circle is $20\ cm$. The distance between the chords is:

(A) $10\ cm$ (B) 12 cm (C) 25 cm (D) 6 cm

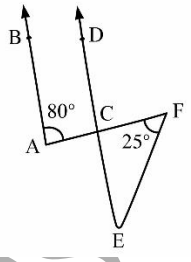
16. Any solution of the linear equation $2x + 0y + 9 = 0$ in two variables is of the form:

(A) $\left(-\frac{9}{2}, m\right)$ (B) $\left(m, -\frac{9}{2}\right)$ (C) $\left(0, -\frac{9}{2}\right)$ (D) $\left(-\frac{9}{2}, 0\right)$

17. In a frequency distribution, the mid value of a class is 10 and the width of the class is 6. The lower limit of the class is:

(A)6 (B) 7 (C) 8 (D) 12

18. In the given figure, $AB \parallel CD$. If $\angle CAB = 80°$ and $\angle EFC = 25°$, then $\angle CEF$ is equal to:



(A) $65°$ (B) $55°$ (C) $45°$ (D) $75°$

Directions: In the following questions, a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Mark the correct choice as:

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

(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.

19. Assertion (A): If $(4, 19)$ is a solution of the equation $y = ax + 3$, then $a = 4$.

    Reason (R): There is one and only one linear equation in x and y that can be satisfied by $x = 1, y = 2$.

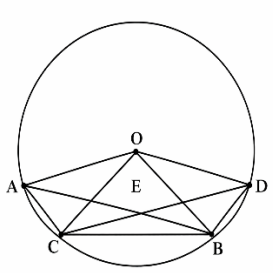
20. Assertion (A): $0.\overline{36}$ is an irrational number.

    Reason (R): Any real number that cannot be expressed in the form $\frac{p}{q}$ where p, q are integers, $q \neq 0$, is an irrational number.

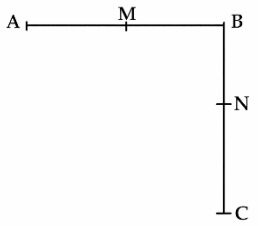
SECTION – B

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

21. In a circle with centre O, chords AB and CD intersect inside the circle at E. Prove that $\angle AOC + \angle BOD = 2\angle AEC$.



22. Using Euclid's axiom, prove that $AM = NC$, if $AB = BC$ and M, N are the midpoints of AB, BC respectively. Also, state the axiom used.



23. Factorise: $a^7 + ab^6$.

OR

If $p(x) = x^2 - 4x - 3$, evaluate $p(2) - p(-1) + p(-2)$.

24. Sides of a triangle are in the ratio of $12 : 17 : 25$ and its perimeter is $540\ cm$. Find its area.

25. At what point does the graph of the linear equation $x + y = 5$ meet a line which is parallel to the $y - axis$, at 2 units from the origin and in the positive direction of $x - axis$?

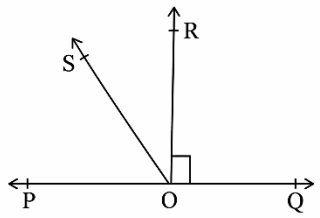
OR

Determine the point on the graph of the equation $2x + 5y = 20$ whose abscissa is $\frac{5}{2}$ times its ordinate.

SECTION – C

(Section C consists of 6 questions of 3 marks each.)

26. In given figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that $\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$.



27. Factorise: $x^3 - 6x^2 + 11x - 6$.

28. Plot the points $P(0,1)$, $Q(0,5)$ and $R(3,4)$ on the graph paper. Also, find the area of the figure so formed.

29. If $\frac{9^n \times 3^2 \times \left(3^{-\frac{n}{2}}\right)^{-2} - (27)^n}{3^{3m} \times 2^3} = \frac{1}{27}$, prove that $m - n = 1$.

OR

Evaluate: $(\sqrt{5 + 2\sqrt{6}} + \sqrt{8 - 2\sqrt{15}}$.

30. ABC is a triangle right angled at C. A line through the mid-point M of hypotenuse AB and parallel to BC intersect AC at D. Show that:

(i) D is the midpoint of AC.

(ii) MD is perpendicular to AC.

(iii) $CM = MA = \frac{1}{2}AB$.

OR

ABCD is a rhombus and AB is produced to E and F such that AE = AB = BF. Prove that ED and FC are perpendicular to each other.

31. The following table gives the distribution of students of two sections according to the marks obtained by them:

Section A		Section B	
Marks	Frequency	Marks	Frequency
0 – 10	6	0 – 10	3
10 – 20	9	10 – 20	3
20 – 30	15	20 – 30	18
30 – 40	6	30 – 40	12
40 – 50	3	40 – 50	6

Represent the marks of the students of both the sections on the same graph by two frequency polygons.

SECTION – D

(Section D consists of 4 questions of 5 marks each.)

32. If $p = \frac{2-\sqrt{5}}{2+\sqrt{5}}, q = \frac{2+\sqrt{5}}{2-\sqrt{5}}$, find the value of:

(i) $p^2 + q^2$

(ii) $p^2 - q^2$

33. The volume of a conical tent is $1232\ m^3$ and the area of the base is $154\ m^2$. Calculate the:

(i) radius of the tent.

(ii) height of the tent.

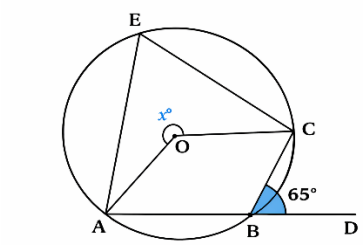
(iii) length of the canvas required to cover this conical tent if its width is $2\ m$.

OR

The surface area of a sphere of radius $5\ cm$ is five times the area of the curved surface of a cone of radius $4\ cm$. Find the height and volume of the cone.

34. Prove that the angle subtended by an arc at the center is double the angle subtended by it at any point on the remaining part of the circle.

Using the above theorem, find the value of x if $\angle CBD = 65°$.



OR

Three girls Reshma, Salma and Mandip are playing a game by standing on a circle of radius 5 m drawn in a park. Reshma throws a ball to Salma, Salma to Mandip, Mandip to Reshma. If the distance between Reshma and Salma and between Salma and Mandip is 6 m each, what is the distance between Reshma and Mandip?

35. If p and q are remainders when the polynomials $x^3 + 2x^2 - 5ax - 7$ and $x^3 + ax^2 - 12x + 6$ are divided by $(x + 1)$ and $(x - 2)$ respectively and if $2p + q = 6$, find the value of a.

SECTION – E
(Case Study Questions)

36. Taxi service is an important transportation option that meets a variety of needs, including basic mobility in emergencies, general transportation for non-drivers, and mobility for tourists and visitors.

The taxi fare in a city is as follows: For the first kilometre, the fare is ₹ 50 and for the subsequent distance it is ₹ 15 $per\ km$. Taking the distance covered as $x\ km$ and total fare as ₹ y, answer the following questions:

(i) Write a linear equation in two variables for the above situation.

(ii) Find the total fare to be paid by a customer if he travelled 10 km.

(iii) If a customer paid ₹ 500 as the total fare for the travelling done by him, find the total distance covered by him.

OR

The taxi service revised the taxi fare and increased the fixed price for first kilometer to ₹ 70 and decreased the subsequent charge to ₹ 10 $per\ km$, what will be the total fare paid for 14 km?

37. The hemispherical dome is a surface formed by the rotation around a vertical axis of a semicircle. Like other "rotational domes" formed by the rotation of a curve around a vertical axis, hemispherical domes have circular bases and

horizontal sections and are a type of "circular dome "A hemispherical dome of a building needs to be painted. If the circumference of the base of the dome is $17.6\ m$, find:

(i) the radius of the base.

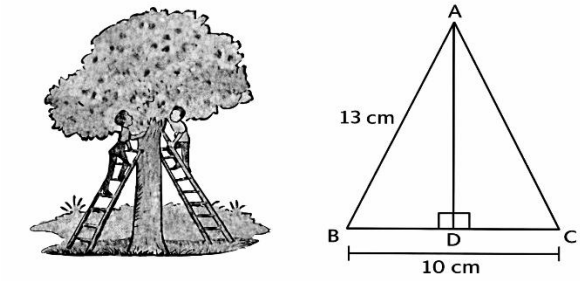
(ii) the surface area to be painted.

(iii) the cost of painting the inner surface if the cost of painting is ₹ $5\ per\ 100\ cm^2$.

OR

The volume of hemispherical dome.

38. Seema had an apple tree in her garden. Tree is laden with apples. One day Seema went to market, her children Aarav and Harsh were playing in the garden. In the absence of their mother, they decided to pluck the apples from tree. They raised two ladders to the branches of tree and both started plucking the apples. After plucking the apples, Aarav decided to make the shape of both the ladders in the form of a triangle and stem of tree as median of triangle and Harsh marked the vertices as A, B, C such that $BD = CD, AD$ is perpendicular to $BC, AB = 13\ cm$ and $BC = 10\ cm$.



Based on the given information answer the following questions:

(i) What is the length of CD?

(ii) What is the length of AD?

(iii) Prove that $\Delta ABD \cong \Delta ACD$.

OR

Which congruence criteria can be used in the above question. Also find the value of $\angle BAC$, if the value of $\angle ABC = 50°$.