Directorate of Education, GNCT of Delhi

Annual Practice Paper (Session: 2025-26)

Class – IX

Subject – Mathematics

Duration: 3 hours **Max. Marks: 80**

General Instructions:

1. This Question Paper has 5 Sections 'A', 'B', 'C', 'D' and 'E'.
2. Section **A** has 20 MCQs carrying 1 mark each
3. Section **B** has 5 questions carrying 02 marks each.
4. Section **C** has 6 questions carrying 03 marks each.
5. Section **D** has 4 questions carrying 05 marks each.
6. Section **E** has 3 case based questions (04 marks each) with sub parts of the values of 1, 1 and 2 marks each respectively.
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.
8. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.
9. Use of calculator is not permitted.
10. **Please do write down the Serial Number of the question before attempting it.**

SECTION A

Section A consists of 20 questions of 1 mark each.

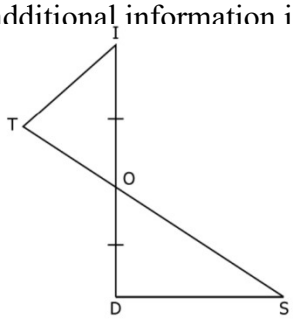
1. The coefficient of 'y' in the linear equation $5(2y - 4) + 3x - 4y - 7 = 0$ is:
   (a) – 4 (b) 6 (c) 10 (d) 14

2. The value of $\sqrt{50}$ is:
   (a) $25\sqrt{2}$ (b) $2\sqrt{5}$ (c) $10\sqrt{2}$ (d) $5\sqrt{2}$

3. The perpendicular distance of the point (-4,-3) from the x- axis is :
   (a) – 3 units (b) 4 units (c) 3 units (d) – 4 units

4. In ΔABC, $AB=BC$ and $\angle B = 40°$. The value of $\angle C$ is:
   (a) 80° (b) 140° (c) 70° (d) 40°

5. The triangles made by two intersecting lines are shown in figure. What additional information is required to prove that $\Delta TOI \cong \Delta SOD$?
   (a) $\angle DOS = \angle TOI$ (b) $\angle OTI = \angle ODI$
   (c) TO = OS (d) TI = DS



6. 'A terminated line can be produced indefinitely' is Euclid's
   (a) Postulate 1 (b) Postulate 2 (c) Postulate 3 (d) Postulate 4

7. The curved surface area of a hemisphere is :
(a) πr^2 (b) $2\pi r^2$ (c) $3\pi r^2$ (d) $4\pi r^2$

8. The degree of the polynomial $p(x)=4x^3-3x^4+2x+1$ is:
(a) 2 (b) 1 (c) 4 (d) 3

9. Two concentric circles have same:
(a) tangent (b) centre (c) chord (d) radius

10. Which of the following is a polynomial in one variable?
(a) x^2+3yx^2+3y (b) $3x+2$ (c) $xy+2xy+2$ (d) $x+\frac{2}{x}+2$

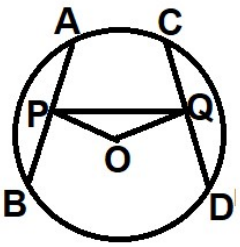
11. The reflex angle of 96^0 is:
(a) 84° (b) 184° (c) 104° (d) 264°

12. The value of $9x^2+4y^2$ if $3x+2y=12$ and $xy=6$ is :
(a) 36 (b) 81 (c) 144 (d) 72

13. A proof is required for:
(a) axioms (b) postulates (c) statements (d) theorems

14. The remainder when $4t^4+5t^3-6t^2+2t-1$ is divided by $t+1$ is :
(a) 6 (b) –10 (c) 4 (d) –6

15. In figure AB and CD are two equal chords of a circle with centre O. OP and OQ are perpendiculars on chords AB and CD respectively. If ∠POQ = 140°, then ∠APQ + ∠CQP is equal to
(a) 120° (b) 130°
(c) 140° (d) 150°



16. The value of x in $2x+5=13$ is:
(a) 5 (b) 9 (c) 4 (d) 8

17. The graph of a linear equation in two variables represents:
(a) a parabola (b) a straight line (c) a circle (d) a curve

18. The area of an equilateral triangle having altitude 'a' unit is:
(a) $\sqrt{3}a^2$ (b) $\frac{\sqrt{3}}{2}a^2$ (c) $\frac{\sqrt{3}}{3}a^2$ (d) $\frac{\sqrt{3}}{4}a^2$

Directions for Q19 & Q 20 : In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Choose the correct option.

(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 and reason (R) is not the correct explanation of assertion (A)
(c) Assertion (A) is true but the reason (R) is false.
(d) Assertion (A) is false but the reason (R) is true.

19. Assertion (A): The equation $2x+3y=5$ has a unique solution.
Reason (R): A linear equation in two variables has infinitely many solutions.

20. Assertion (A): The square root of every positive integer is not irrational.
Reason (R): The square root of 4 is 2, a rational number.

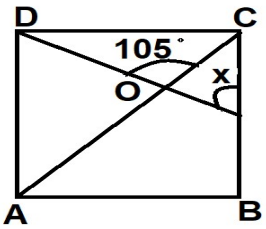
SECTION B

Section B consists of 5 questions of 2 mark each.

21. The weight(in kg) of 40 students of a class is as follows:
44, 38, 35, 40, 30, 37, 50, 44, 39, 41, 48, 52, 37, 47, 33, 41, 54, 32, 46, 45,
37, 50, 34, 43, 32, 46, 52, 39, 31, 46, 50, 34, 52, 41, 38, 40, 35, 45, 54, 31

Prepare a frequency distribution table for the above data.

22. In the given figure, if ABCD is a square then find the value of '*x*'.



23. The total surface area of a sphere and a hemisphere is equal. Find the ratio of their volumes.

OR

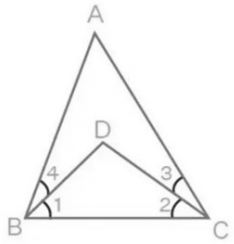
The volume of a right circular cone is 9856 cm^3. If the diameter of the base is 28 cm, find the height of the cone.

24. If a, b, c are sides of a triangle, s – a = 5, s – b = 4 and s – c = 2 then find the value of a, b and c.

25. State Euclid's first postulate.

OR

In the given figure, ∠ABC = ∠ACB and ∠1 = ∠2. Show that ∠3 = ∠4. Which Euclid axiom you used in proving it?



SECTION C

Section C consists of 6 questions of 3 marks each.

26. Show that the line segment joining the mid-points of triangle sides divides it into four congruent triangles.

27. The thickness of a wooden hemispherical bowl is 1.4 cm and its inner radius is 3.5 cm. Harpreet wants to paint it completely. Find the total area to be painted. How much liquid can the bowl hold in litres?

28. If p = 5-2√6 then find the value of $\frac{(1-p)^2}{p^2}$.

OR

Represent √3 on number line.

29. Name the quadrants in which the points A(1, 2), B(-2, 3), and C(-2, -1) lie. Which do points lie on the same line?

30. Find the difference of the polynomials $p(x)=x^2-5x+6$ and $p(x)=x^2+9$ at p(2).

31. ABCD is a rectangle in which diagonal AC bisects ∠A as well as ∠C. Show that:
(i) ABCD is a square
(ii) diagonal BD bisects ∠B as well as ∠D.

OR

E and F are points on diagonal AC of a parallelogram ABCD such that AE = CF. Show that BFDE is a parallelogram.

SECTION D

Section D consists of 4 questions of 5 marks each.

32. Prove that the quadrilateral formed by angle bisectors of a cyclic quadrilateral is also cyclic.

33. Simplify $\frac{7\sqrt{3}}{\sqrt{10}+\sqrt{3}}-\frac{2\sqrt{5}}{\sqrt{6}+\sqrt{5}}-\frac{3\sqrt{2}}{\sqrt{15}+3\sqrt{2}}$

34. Factorize $p(x) = -28x^3+16x^2+9x-11$ using factor theorem.

OR

Find the product: $(3x - 5y - 4)(9x^2 + 25y^2 + 15xy + 12x - 20y + 16)$

35. A triangular park ABC has sides in the ratio 12:17:25, and its **perimeter** is 540 m.Find the area of the park and the length of the altitude (height) corresponding to the longest side.

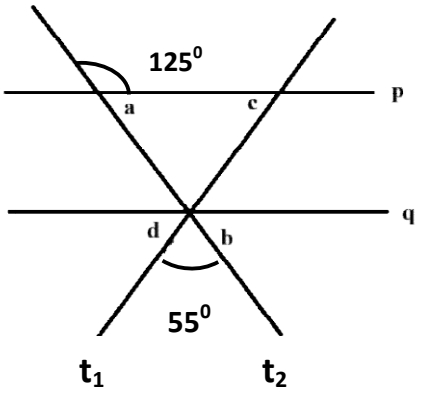
OR

The difference between the sides at right angles in a right angled triangle is 14 cm. The area of the triangle is 120 cm^2. Find the perimeter of the triangle.

SECTION E

Section E consists of 3 questions of 4 marks each.

36. A town planner is designing a new residential area. She models two main parallel roads, p and q, intersected by two cross-streets, t_1 and t_2, as shown in the figure. The roads p and q are parallel. The angle formed by the intersection of road p and cross-street t_2 is given as 125^0. The two cross-streets, t_1 and t_2 makes an angle of 55^0 with the street q.



Based on the above information, answer the following questions:

(i) Find ∠a. 1

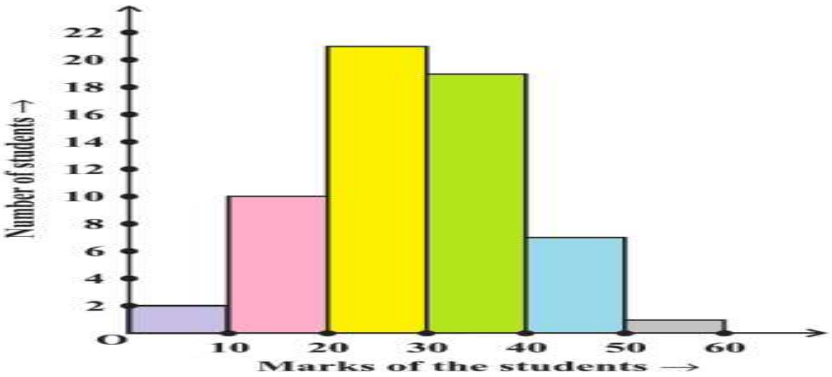
(ii) Find ∠c. 1

(iii) Find ∠b. 2

OR

Find ∠d.

37. Anil is a Mathematics teacher in a government school in New Delhi. After periodic test III, he collected the marks of all the students of class IX. He observed that the least marks and the highest marks scored by the students are 2 and 59 respectively. He prepares the frequency distribution table using the collected marks and draws the histogram using the table as shown in the adjoining figure:



Based on the above information, answer the following questions:

(i) What is the width of the class? 1

(ii) How many students scored 50% and above marks? 1

(iii) What is the total number of students in histogram? 2

OR

What is the range of the collected marks?

38. A school canteen has left with besan cheela and fruit Juice to offer to students on a certain day. Some students visit the canteen. Group I bought 3 besan cheelas and 2 fruit juices and paid ₹160. Group II bought 5 besan cheelas and 4 fruit juices and paid ₹280.

Based on the above information, answer the following questions:

(i) Form the pair of linear equation for group 1. 1

(ii) Form the pair of linear equation for group 2. 1

(iii) Find the price of one besan cheela. 2

OR

What is the price of one fruit juice?