



GRADE 9

MATHEMATICS

School Level Examination (SLE) 2025

SUBJECT CODE

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Total Questions: 50

Total Marks: 50

Time: 1 Hour

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED TO DO SO

- Carefully fill in your **Name, Class, Roll Number**, and other required details on the **OMR Answer Sheet**.
- Use **only an HB pencil** to fill the OMR Answer Sheet.
- All questions are **compulsory** and carry **one mark** each.
- Only **OMR Answer Sheets** will be evaluated.
- There is **no negative marking** for incorrect answers.
- You may use the **last page** of the question paper for **rough work**.
- **Digital devices** like calculators, smart watches, or mobile phones are **not allowed**.
- After the exam, **submit** both the **OMR Answer Sheet** and the **Question Paper** to the invigilator.

This question paper contains a total of 50 questions, divided into three sections: A, B, and C.

Section A (Logical Reasoning)

1. Find the value of X.

3				2
	4		9	
		4900	441	
		X	144	
	3			14
7				5

- (A) 256 (B) 576 (C) 324 (D) 81

2. Find the missing number '?'.
 (A) 1 (B) 7
 (C) 3 (D) 8

3	14	17	21
9	6	9	1
7	4	?	1

3. $PQRST \times 9 = TSRQP$

When a 5-digit number PQRST is multiplied by 9, it is reversed. The value of $(Q + R + S)$ is

Note: The leftmost digit in each number cannot be zero.

- (A) 12 (B) 17 (C) 15 (D) 22

4. If $7 \times 5 \times 4 = 57354$ and $8 \times 7 \times 3 = 78563$, then $6 \times 8 \times 5 = ?$

- (A) 86585 (B) 86855 (C) 68485 (D) 86485

5. Find the odd one out from the given options:

- (A) $94 - 7$ (b) $144 - 6$ (C) $35 - 5$ (D) $256 - 8$

6. O P D

$$\begin{array}{r} + \quad O \quad P \quad D \\ \hline D \quad E \quad E \quad P \end{array}$$

The value of $(O + E + P)^2$ is

Note: Each alphabet represents a distinct digit, and the leftmost digit in each number cannot be zero.

- (A) 121 (B) 144 (C) 169 (D) 256

7. In the following number series, how many 5s are immediately preceeded by a pair of numbers whose product is more than the product of the pair of numbers immediately following it.

2354354376595435215432567854537653

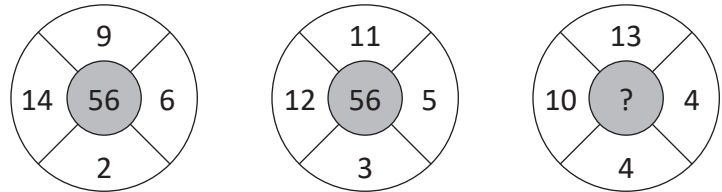
- (A) 2 (B) 3 (C) 5 (D) 6

8. Find the next number in the series:

104, 99, 81, 72, ?

- (A) 65 (B) 54 (C) 59 (D) 63

9. If $\frac{9}{6} + \frac{9}{5} = \frac{a}{b}$, then the possible value of $(a + b)$ is _____.
- (A) 33 (B) 38 (C) 42 (D) 43
10. A set of figures carrying certain numbers is given. Assuming that the numbers in each figure follow the same pattern, find the missing number.
- (A) 54
 (B) 53
 (C) 16
 (D) 45

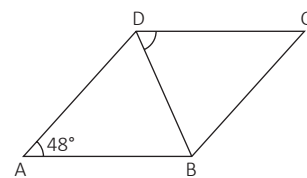


Section B (Subject Specific)

11. How many 3-digit numbers are possible for which the product of the digits equal to 20?
 (A) 2 (B) 4 (C) 5 (D) 9
12. If a and b are two odd primes, then $a^2 - b^2$ is a
 (A) Prime number (B) Composite number
 (C) Neither prime nor composite (D) None of these
13. If $x^2 + \frac{1}{x^2} = 51$, then the value of $x^3 - \frac{1}{x^3}$ is _____.
- (A) 360 (B) 362 (C) 364 (D) 366
14. If $2\sqrt{3 + \sqrt{5 - \sqrt{13 + \sqrt{48}}}} = \sqrt{a} + \sqrt{b}$, then the value of $a + b$ is
 (A) 4 (B) 6 (C) 8 (D) 9
15. The mean of a, b, c, d and e is 28. The mean of a, c and e is 24. The mean of b and d is _____.
 (A) 34 (B) 33 (C) 32 (D) 31
16. One of the factors of $x^n - nx + n - 1$ will be
 (A) $x - 1$ (B) $x + 1$ (C) $x - 2c$ (D) $x + 2$
17. The image of the point $(-2, 0)$ about a line making an angle of 45° in 1st quadrant is _____.
 (A) $(0, 2)$ (B) $(0, -2)$ (C) $(2, 0)$ (D) $(-2, -1)$
18. The number of planes that can be made to pass through three distinct collinear points is
 (A) Infinite planes (B) One plane (C) Three planes (D) None of these
19. The points $A(2, -4)$ and $B(2, 4)$ lie on a line, then the line AB is
 (A) Parallel to x-axis (B) Parallel to y-axis
 (C) Passes through the origin (D) None of these

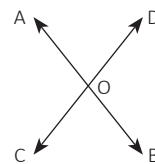
20. ABCD is a rhombus. If $\angle A = 48^\circ$, then $\angle BDC$ is _____.

(A) 64° (B) 65°
 (C) 66° (D) $66\frac{1}{2}^\circ$



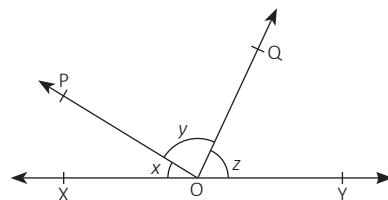
21. In the given figure, AB and CD are intersecting lines. Which one of the following is false?

(A) $\angle AOC$ and $\angle BOD$ are adjacent angles
 (B) $\angle AOC$ and $\angle COB$ form a linear pair.
 (C) $\angle AOD$ and $\angle COB$ are vertically opposite angles.
 (D) $\angle COB$ and $\angle DOB$ are supplementary angles.



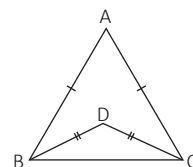
22. In the given figure, $\frac{y}{x} = 5$, $\frac{z}{x} = 4$. Then x is equal to

(A) 8° (B) 18°
 (C) 12° (D) 15°



23. In the given figure, if $AB = AC$ and $BD = CD$, then $\angle ABD : \angle ACD =$

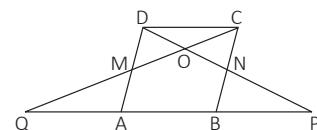
(A) 1 : 1
 (B) 1 : 2
 (C) 2 : 1
 (D) 2 : 3



24. ABCD is a parallelogram. X and Y are the midpoints of BC and CD, respectively. Then $\frac{\text{area of } \triangle AXY}{\text{area of } \text{||gm ABCD}} =$

(A) $\frac{3}{8}$ (B) $\frac{5}{8}$
 (C) $\frac{7}{8}$ (D) $\frac{1}{8}$

25. In parallelogram ABCD of the accompanying diagram, line DP is drawn bisecting BC at N and meeting AB (extended) at P. From vertex C, line CQ is drawn bisecting side AD at M and meeting AB (extended) at Q. Lines DP and CQ meet at O. What is the ratio of the area of triangle QPO to the parallelogram ABCD?



(A) 7 : 8 (B) 9 : 8 (C) 11 : 8 (D) 13 : 11

26. The mean of the observations x , $x + 3$, $x + 5$, $x + 7$, $x + 10$ is 9. What is the mean of last three observations?

(A) $10\frac{1}{3}$ (B) $10\frac{2}{3}$
 (C) $11\frac{1}{3}$ (D) $11\frac{2}{3}$

27. The sides of a triangle are in the ratio 12 : 17 : 25 and its perimeter is 540 cm. The area the triangle is _____.

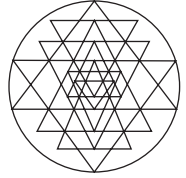
(A) 1000 sq.cm (B) 5000 sq.cm (C) 9000 sq.cm (D) 8000 sq.cm

28. The radius of the base of a right circular cylinder is halved, keeping the height same. The ratio of the volume of reduced cylinder to that of the original one is _____.

(A) 1 : 4 (B) 2 : 3 (C) 1 : 2 (D) 2 : 5

29. The number of interwoven isosceles triangles in Sri Yantra (in the Atharva Veda) is

(A) 7 (B) 8
(C) 9 (D) 11



30. The number of dimensions, a solid has _____ while a surface has _____

(A) 3 and 2 (B) 2 and 3 (C) 1 and 3 (D) 2 and 2

31. If $\frac{\sqrt{8}-\sqrt{5}}{\sqrt{8}+\sqrt{5}} = x - y\sqrt{40}$, then $x - y =$

(A) $\frac{13}{3}$ (B) $\frac{11}{3}$
(C) $\frac{2}{3}$ (D) 5

32. If $a + b + c = 0$, show that $a^3 + b^3 + c^3 = 3abc$.

The following are the steps involved in showing the above result. Arrange them in sequential order.

I. $a^3 + b^3 + 3ab(-c) = -c^3$

II. $(a + b)^3 = (-c)^3$

III. $a + b + c = 0 \Rightarrow a + b = -c$

IV. $a^3 + b^3 + 3ab(a + b) = -c^3$

V. $a^3 + b^3 + c^3 = 3abc$

(A) I, II, IV, III, V

(B) II, III, IV, I, V

(C) III, II, IV, I, V

(D) III, I, IV, II, V

33. The following are the steps involved in solving the equations $2^x + 3^y = 17$ and $2^{x+1} + 3^{y+1} = 43$ for x and y . Arrange them in sequential order.

I. Rewrite the given equation in terms of p and q II. Let $p = 2^x$ and $q = 3^y$

III. Find x and y

IV. Solve for p and q

(A) I, II, III, IV

(B) I, II, IV, III

(C) II, I, III, IV

(D) II, I, IV, III

34. **Assertion (A):** A chord of a circle, which is thrice as long as its radius, is the diameter of the circle.

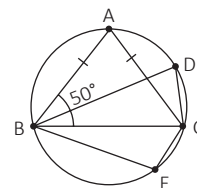
Reason (R): Any chord, whose length is twice as long as its radius, passed through the centre of the circle.

- (A) Both assertion and reason are true and reason(R) is the correct statement of explanation of assertion (A).
(B) Both assertion and reason are true and reason(R) is not the correct statement of explanation of assertion (A).
(C) Assertion(A) is true but Reason (R) is false.
(D) Assertion(A) is false but Reason (R) is true.

35. If the volumes of two spheres are in the ratio of 27 : 8, then their surface area are in the ratio of _____.
- (A) 3 : 2 (B) 4 : 9 (C) 9 : 4 (D) 2 : 3

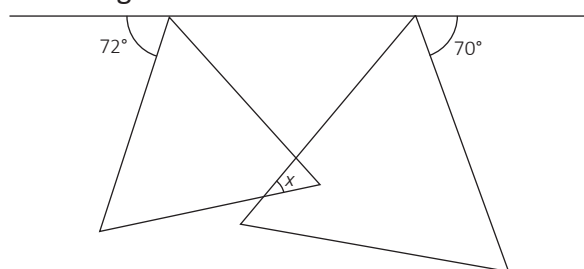
Instruction: Q. 36 to 40 are two-key based questions having four options A, B, C and D out of which TWO are correct.

36. $x^2 - 1$ is a factor of $p(x) = ax^4 + bx^3 + cx^2 + dx + e$, then _____.
- (A) $a + c + e = 0$ (B) $a + c + d = 0$ (C) $b - d = 0$ (D) $b + d = 0$
37. To construct a triangle uniquely, we need
- (A) All three sides. (B) All three angles.
 (C) Two sides and one angle (not included). (D) One side and two angles
38. Which of the following statement(s) is/are false?
- (A) $(-1, 7)$ is a point in the II quadrant.
 (B) If $(x + 1)$ is a factor of $a^2x^3 - 4ax + 4a - 1$, then the value of a are 1, -1 .
 (C) A circle can be drawn with any centre and any radius.
 (D) The diagonals of a parallelogram are equal.
39. In the given figure, $\triangle ABC$ is an isosceles triangle with $AB = AC$. If $\angle ABC = 50^\circ$, then _____.
- (A) $\angle BDC = 60^\circ$
 (B) $\angle BDC = 80^\circ$
 (C) $\angle BEC = 100^\circ$
 (D) $\angle BEC = 110^\circ$
40. Two chords AB and CD of a circle cut each other when produced outside the circle at P. AD and BC are joined. If $\angle PAD = 30^\circ$ and $\angle CPA = 45^\circ$, then the measure of $\angle CBP =$ _____ and $\angle BCP =$ _____.
- (A) 45° (B) 75° (C) 30° (D) 105°



Section C (Competency Enhancement)

41. The factors of $(x - y)^3 + (y - z)^3 + (z - x)^3$ are
- (A) $x + y$ (B) $3(x + y + z)$ (C) $xy - xz - y^2 + yz$ (D) $(x + y)(x - y)$
42. Two equilateral triangles on a straight line are shown here. What is the value of x ?

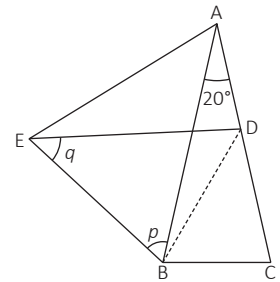


- (A) 40° (B) 38° (C) 45° (D) 35°

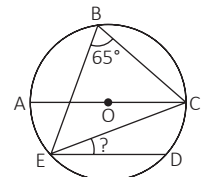
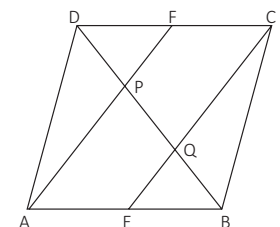
43. A polynomial is given in standard form as $x^3 + ax^2 + bx + c = 0$. The same polynomial can be written as $(x + p)(x + q)(x + r) = 0$. How is the coefficient of x in the polynomial related to its factors p , q , and r ?
- (A) $a = p + q + r$ (B) $b = pq + qr + pr$
 (C) $b = pqr$ (D) $a = pqr$

Read the text given below and answer the questions 44 and 45.

In the given figure, two isosceles triangles, $\triangle ABC$ and $\triangle EAD$ are congruent. Point E is equidistant from both A and B.



44. What is the value of p ?
- (A) 40° (B) 60°
 (C) 30° (D) 70°
45. What is the value of q ?
- (A) 40° (B) 30°
 (C) 60° (D) 50°
46. If $x = \sqrt{3} + 1$, then the value of $x^2 + \frac{1}{x^2}$ is
- (A) $\frac{3\sqrt{3}}{2}$ (B) $5 + \frac{3\sqrt{3}}{2}$ (C) $5 - \frac{3\sqrt{3}}{2}$ (D) $3 + \frac{3\sqrt{3}}{2}$
47. Mohan has a box of coloured pens. He takes the pens at a random from the box. The probability that he takes a red pen from the box is 0.4. If the box contain a total of 50 pens of red, blue and green colour, find the number of red pens in the box.
- (A) 15 (B) 20 (C) 25 (D) 30
48. If the slant height of a cone is increased by 10%, and its radius remains the same, then the curved surface area increases by _____.
- (A) 10% (B) 12.1% (C) 12% (D) 12.5%
49. In a parallelogram ABCD, E and F are the midpoints of sides AB and CD respectively. Then, which of the following is false?
- (A) P is the midpoint of AF.
 (B) AECF is a parallelogram.
 (C) $DP = PQ$
 (D) $PQ = QB$
50. Chord ED is parallel to the diameter AC of the given circle with centre O. If $\angle CBE = 65^\circ$, then what is the measure of $\angle DEC$?
- (A) 60° (B) 45°
 (C) 35° (D) 25°



SPACE FOR ROUGH WORK