ORANGE GLOBAL OLYMPIAD

MATHEMATICS
Grade 8

National Level Examination
NLE 2024

Subject Code: 2 0 1

Total Questions: 40 **Time:** 1 hour

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED TO DO SO

- All questions are compulsory.
- Read the instructions on the **ANSWER SHEET** and fill in your **NAME**, **CLASS** and **OTHER INFORMATION**.
- To mark your choice of answer by darkening the circles in the **ANSWER SHEET**, use a **BLUE/BLACK BALL PEN** only.
- You **MUST** record your answers on the **ANSWER SHEET** only.
- There are **40 MULTIPLE CHOICE QUESTIONS**. Use the information provided to choose the **BEST** possible answer among the four options. On your **ANSWER SHEET** fill in the circle that matches your answer.
- $\frac{1}{2}$ **MARK** will be deducted for every **WRONG ANSWER**.
- Return the **ANSWER SHEET** to the invigilator at the end of the examination.
- You are **NOT** allowed to use a calculator. You may use a ruler and spare paper for rough work.

This question paper contains a total of 40 questions divided into three sections—A, B and C.
Read the instructions carefully before attempting these questions.

Section A (Logical Reasoning)

1. There is some relationship between the first two figures and the same relationship exists between the next two figures.

(A) 

(B) 

(C) 

(D) 

2. In a row of girls, if Seeta who is 7th from the left and Leena who is the 9th from the right interchange their seats, Seeta becomes 11th from the left. How many girls are there in the row?

(A) 16 (B) 18
(C) 20 (D) 19

3. ACFJ is related to ZXUQ in the same way as EGJN is related to _____.

(A) DBYU (B) VTQM
(C) VTRP (D) VUSQ

4. A boy travelled westwards 5 km, turned left and travelled 3 km, turned right and travelled 9 km. He then travelled 3 km towards North. How far from the starting point is he now?

(A) 3 km (B) 5 km
(C) 10 km (D) 14 km

5. In a certain code, "786 means" "bring me apple" and "958" means "peel green apple" and "645" means "bring green fruit", which of the following is the code for "me"?

(A) 8 (B) 6
(C) 7 (D) Cannot be estimated

6. Choose the correct order of signs in the following:

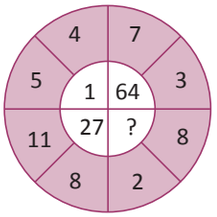
66 _____ 27 _____ 13 _____ 3

(A) = – × (B) × = –
(C) – = × (D) – × =

7. If B = 2, H = 8 and TAB = 23, then what is the numeric value of RACE?

(A) 31 (B) 30
(C) 28 (D) 27

8. Find the missing number in the figure given below.



(A) 0 (B) 216

(C) 125 (D) 256

Section B (Subject Specific)

9. If a point lies on x-axis, then the _____ of that point is zero.

(A) abscissa (B) ordinate

(C) origin (D) x-axis

10. Which of the following is not a linear equation in one variable?

(A) $3x + 2 = 0$ (B) $2y - 4 = y$

(C) $x - 2y = 7$ (D) $2(x - 3) + 7 = 0$

11. The number of sides in a regular polygon, having measure of an exterior angle as 72°, is _____.

(A) 8 (B) 7

(C) 6 (D) 5

12. A parallelogram EFGH is constructed with sides FG = 6 cm, EF = 4 cm and angle EFG = 90°. The parallelogram EFGH is also a _____.

(A) square (B) rectangle

(C) rhombus (D) trapezium

13. In a parallelogram, if diagonals AC and BD intersect each other at O and AO = 6 cm, then AC = _____.

(A) 14 cm (B) 12 cm

(C) 10 cm (D) 8 cm

14. The total number of outcomes, when a ball is drawn from a bag which contains 3 red, 5 black and 4 blue balls, is _____.

(A) 8 (B) 7

(C) 9 (D) 12

15. A die is tossed two times. The number of possible outcomes is _____.

(A) 36 (B) 30

(C) 24 (D) 12

16. Find the least number of three digits which is a perfect square.

(A) 110 (B) 100

(C) 120 (D) 130

17. If one number of a Pythagorean triplet is 6, then the triplet is _____.

(A) (4, 5, 6) (B) (5, 6, 7)

(C) (6, 7, 8) (D) (6, 8, 10)

18. A TV set was bought for ₹26,250 including 5% GST. The original price of the TV set is _____.

(A) ₹27,562.50 (B) ₹25,000

(C) ₹24,937.50 (D) ₹26,245

19. Shyama wishes to arrange 36562 flower pots in such a way that the number of rows remains equal to the number of flowers in a row. After arranging them, she found that some of the flower pots are left without being arranged in a row. How many flower pots were left?

(A) 81 (B) 97

(C) 36 (D) 58

20. The value of $(-27\ x^2y) \div (-9xy)$ is _____.

(A) $3xy$ (B) $-3xy$

(C) $-3x$ (D) $3x$

21. Which of the following is the correct least possible value of A for which 250 × A is a perfect cube?

(A) 200 (B) 300

(C) 400 (D) 500

22. The area of the floor of a room is 85.5 m^2. Its volume is 983.25 m^3. What is the height of the room?

(A) 11.5 m (B) 12.5 m

(C) 13.5 m (D) 14.5 m

23. In how many years, will a sum become 27 times when it triples itself in 7 years at compound interest?

(A) 14 years (B) 28 years

(C) 21 years (D) None of these

24. The value of $\left(\frac{x^p}{x^q}\right)^{p+q} \times \left(\frac{x^q}{x^r}\right)^{q+r} \times \left(\frac{x^r}{x^p}\right)^{r+p}$ is _____.

(A) 0 (B) 1

(C) 2 (D) 3

25. The product of two rational numbers is 8/39. If one of the numbers is 2/3 find the other number.

(A) 2/9 (B) 3/11

(C) 4/13 (D) 5/17

26. In 15 days if earth picks up 1.2×10^8 kg of dust from the atmosphere. In how many days, will it pick up 6×10^8 kg of dust from the atmosphere?

(A) 60 days (B) 75 days

(C) 90 days (D) 105 days

27. How many edges does a square pyramid have?

(A) 4 (B) 5

(C) 7 (D) 8

28. Which of the following is the condensed form of $4(x + y)^2 - 28y\ (x + y) + 49y^2$?

(A) $(2x - 5y)^2$ (B) $(3x - 7y)^2$

(C) $(2x + 5y)^2$ (D) $(-2x - 9y)^2$

Instruction: Q. 29 to 33 are two-key based questions having four options A, B, C and D out of which TWO are correct.

29. Given that the number 59142a is divisible by 4, where a is a digit. The possible values of 'a' are _____.

(A) 2 (B) 4

(C) 6 (D) 8

30. Find the possible ones digits of *N*, if $N \div 5$ leaves remainder 4 in a division.

(A) 2 (B) 4

(C) 8 (D) 9

31. Choose the incorrect statements.

(A) The data arranged in ascending or descending order of size is called data array.

(B) The lower limit of class 10 – 20 is 20.

(C) The class mark of 25 – 35 is 30.

(D) There is no difference between bar graph and historgram.

32. Alok has 2 times as many twenty-five paisa coins as fifty-paisa coins. If he has a total of ₹3.00, how many coins of each kind does he have?

(A) Three coins of fifty-paisa (B) Five coins of fifty-paisa

(C) Six coins of twenty-five paisa (D) Eight coins of twenty-five paisa

33. The factors of $x^2 - \frac{1}{4}$ are _____ and _____.

(A) $\left(x - \frac{1}{2}\right)$ (B) $\left(x - \frac{1}{4}\right)$

(C) $\left(x + \frac{1}{2}\right)$ (D) $\left(x + \frac{1}{4}\right)$

Section C (Competency Enhancement)

34. Shubhangi has 35 interlocking cubes of two different colours. She makes two large cubes of different colours and different length using all the small cubes. How many small cubes will be found along each side of the two different coloured large cubes thus formed?

(A) 5, 16 (B) 4, 9

(C) 3, 8 (D) 2, 5

35. Find the number, if on dividing the cube of a number by the number itself, the quotient is found to be 36.

(A) 6 (B) 9

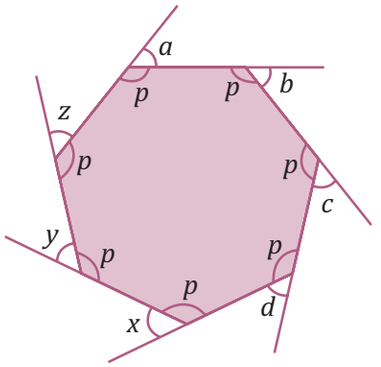
(C) 36 (D) 216

Study the given text and answer the questions from 36 to 38.

In the n-sided polygon, the sum of all the interior angles is $(n - 2) \times 180°$ and sum of all the exterior angles is 360°.

For example, in the given figure, $a + b + c + d + x + y + z = 360°$. The number of diagonals in a polygon of n sides is $n\frac{(n-3)}{2}$.

If exterior angle is given, then number of sides in any polygon is 360°/(Exterior angle)



36. Which of the following can never be the measure of an exterior angle of a regular polygon?

(A) 22° (B) 36°

(C) 45° (D) 30°

37. Each interior angle of a regular polygon having 15 sides is _____.

(A) 24° (B) 48°

(C) 156° (D) 96°

38. The number of diagonals in an octagon is _____.

(A) 8 (B) 12

(C) 16 (D) 20

Study the given text and answer the questions from 39 and 40.

If present ages of two persons are x years and y years, then after 'a' years, their ages will be (x + a) years and (y + a) years respectively, while 'b' years ago, their ages were (x – b) years and (y – b) years respectively.

39. Twelve years hence, a man will be four times as he was 12 years ago, then his present age is _____.

(A) 25 years (B) 20 years

(C) 28 years (D) 30 years

40. Shikha's present age is p years. Reema's present age is 4 times the present age of Shikha. After 5 years, Reema's age will be _____.

(A) 4p years (B) 5p years

(C) (4p + 5) years (D) (p + 5) years