# MODEL QUETION PAPER

National Mathematics Olympiad

**10TH** CLASS

**NMO**

## Instructions:

**Total Duration:** 2 hours (120 minutes)
**Total Marks:** 60

The paper consists of four sections. Each question carries the same marks as mentioned in each section.
There is no negative marking.

## Section A:

**Arithmetic (15 marks)**
Each question carries 3 marks.

1. Solve: \( 1234 + 5678 - 4321 \)
2. Multiply: \( 89 \times 76 \)
3. Divide: \( 1024 \div 32 \)
4. Find the value of \( \frac{5}{8} \) of 128.
5. If a laptop costs $750 and you buy 3 laptops, how much will it cost in total?

## Section B:

**Algebra (15 marks)**
Each question carries 3 marks.

6. Solve for \( x \): \( 2x - 7 = 3(x + 1) \)
7. Factorize: \( x^2 - 25 \)
8. Simplify: \( 4(3a - 2) - 5(2a - 3) \)
9. If \( y = 2x^2 - 3x + 4 \) and \( x = -2 \), find the value of \( y \).
10. Expand: \( (2x - 3)(x + 4) \)

## Section C:

**Geometry (15 marks)**
Each question carries 3 marks.

11. Calculate the area of a triangle with base 15 cm and height 10 cm.
12. What is the perimeter of a regular hexagon with each side measuring 8 cm?
13. Name a three-dimensional shape with a rectangular base and a curved surface.
14. Draw and label a scalene triangle.
15. Calculate the volume of a sphere with radius 6 cm (Use \( \pi = 3.14 \)).

## Section D:

**Data Handling and Logical Reasoning (15 marks)**
- Data Handling (8 marks)
- Each question carries 2 marks.
- Logical Reasoning (7 marks)

- Each question carries 1 mark.

16. If there are 14 red balls, 21 blue balls, and 35 green balls in a bag, how many balls are there in total?
17. Represent the following data using a pie chart:
    - Math: 80, Science: 70, English: 50
18. Calculate the median of the numbers: 22, 25, 29, 30, 32, 35, 40.
19. Arrange the following numbers in ascending order: 92, 85, 77, 68, 94.
20. What is the range of the numbers: 45, 67, 89, 34, 23, 78?
21. Complete the series: 3, 9, 27, 81, ___
22. Choose the odd one out: 100, 144, 169, 196, 220
23. If \( A = 10 \), \( B = 7 \), and \( C = 5 \), find \( A \times B + C \).
24. Which number comes next in the pattern: 5, 10, 17, 26, ___
25. If today is Tuesday, what day will it be 25 days from now?

## Answers:

1. 3591
2. 6764
3. 32
4. 80
5. $2250
6. \( x = -10 \)
7. \( (x - 5)(x + 5) \)
8. \( 2a + 7 \)
9. \( y = 18 \)
10. \( 2x^2 + 5x - 12 \)
11. 75 cm²
12. 48 cm
13. Cylinder
14. Scalene triangle (Answer may vary)
15. 904.32 cm³
16. 70 balls
17. Pie chart representation
18. 29
19. 68, 77, 85, 92, 94
20. 66
21. 243
22. 220
23. 75
24. 37
25. Friday