MATHEMATICS MOCK TEST

Class: VI | Set: 08

Time: 2 Hours | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. How many 4-digit numbers are there in all?
2. Write "20 and 5 hundredths" as a decimal.
3. How many times does the digit 9 occur if we write all the numbers from 1 to 100?
4. Name the instrument in the geometry box used to draw a circle of a specific radius.
5. If a symbol represents 6 students in a pictograph, how many symbols are needed to represent 24 students?

SECTION B

(2 Marks Each)

6. Find the greatest four-digit number in which all the digits are different.
7. Write any 4 palindromic times (e.g., 10:01, 12:21).
8. Express 5 cm as metres using decimals.
9. Draw a line segment $AB = 7.3$ cm using a ruler and label it.
10. Subtract: 2.107 kg $- 0.314$ kg.

SECTION C

(3 Marks Each)

11. Form the greatest 6-digit number using the digits 6, 5, 9, and 3, repeating any two digits and using each digit at least once.
12. Write any 3 numbers whose digit sum is 12 and find the sum of the smallest and largest 4-digit palindromes.
13. Draw a line segment $\overline{PQ}$ of length 6.1 cm and construct its perpendicular bisector using a ruler and compasses.
14. The following table shows the favorite subjects of 20 students:
Maths: 8, Science: 5, English: 4, Art: 3.
Organize this data in a table using tally marks and find which subject is liked the most.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: Supercells and Number Patterns
In a sequence of numbers, a ”supercell” is a number that follows a specific logic of position or value compared to its neighbors.

(i) Find the number of supercells in the following row of cells:
8010, 2367, 942, 1163, 125, 3418, 3814, 3184, 3481. (2 Marks)

(ii) Is it possible to fill a grid with all distinct numbers such that there are no supercells? Justify your answer. (2 Marks)

Case Study 2: Estimation and Logic
Solve the following problems using estimation techniques:

(i) Sanjay’s garden has sunflowers. He counted the petals of a sunflower and found them to be 79. Estimate the total number of petals in 122 such sunflowers (round to the nearest hundred). (2 Marks)

(ii) The clock just displayed the palindromic time 10:01. After how much time will this clock display the **next** palindromic time? (2 Marks)

VIVA VOCE

(5 Marks)

- **Logic:** If we start with 3814, what is the first step to arrive at Kaprekar’s constant?
- **Decimals:** How many centimetres are there in 0.5 metres?
- **Palindromes:** Write the palindromic date that occurred in 2021.
- **Geometry:** What is a perpendicular bisector?
- **Estimation:** If there are 55 seeds in 8 fruits, estimate the number of seeds in each fruit.