MOCK MATHEMATICS SUBJECTIVE TEST
CLASS – VIII (SET – 1)

Maximum Marks: 80   **Duration 3.0 Hours**

Rational number, Linear Equations in One Variable, Quadrilaterals, Square & Square Roots, Cube & Cube Roots, Data Handling, Exponents & Powers.

General Instructions:
1. This question paper consists of **38 questions**. All questions are compulsory.
2. **Paper Pattern and Marking Scheme:**
   There are **Five Sections** in the question paper (Section **A**, **B**, **C**, **D** and **E**).
   - In **Section A** – question numbers **1 to 20** are Multiple Choice Questions (MCQs) carrying **1** mark each.
   - In **Section B** – question numbers **21 to 25** are Very Short Answer Questions (VSA) type questions carrying **2** marks each. Answer to there questions should be in the range of **30** to **50** words.
   - In **Section C** – question numbers **26 to 31** are Short Answer Questions (SA) type questions carrying **3** marks each. Answer to these questions should be in the range of **50** to **80** words.
   - In **Section D** – question numbers **32 to 35** are Long Answer Questions (LA) type questions carrying **5** marks each. Answer to these questions should be in the range of **80** to **120** words.
   - In **Section E** – question numbers **36 to 38** are 3 source-based/case-based units of assessment carrying 4 marks each with sub-parts.
   - There is no overall choice. However, an internal choice has been provided in some Sections.

(SECTION – A)

1. Which of the following is not a square number?

(A) 25   (B) 36   (C) 16   (D) 50

2. The exponent in the expression 5^8 is:

(A) 8   (B) 5   (C) 6   (D) 4

3. The cube of an even number is always_____.

(A) an odd number   (B) an even number

(C) a prime number   (D) none of these

4. If $5x + 7 = 17$, then x is equal to:

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

5. Two numbers are in the ratio 7 : 2. If they differ by 25, find the numbers?
   (A) 35, 10   (B) 40, 15   (C) 32, 7   (D) 45, 20

6. Which least number should be subtracted from 692 so as to get a perfect square?
   (A) 18   (B) 16   (C) 21   (D) 23

7. The square of which of the following would be an odd number?
   (A) 258   (B) 316   (C) 521   (D) 624

8. Each prime factor appears _____ times in its cube.
   (A) 2   (B) 4   (C) 3   (D) 5

9. The perimeter of a rectangle is 13 cm and its width is $2\dfrac{3}{4}$ cm. Find its length (in cm).

   (A) $3\dfrac{3}{4}$ (B) $5\dfrac{3}{4}$ (C) $2\dfrac{3}{4}$ (D) None of these

10. Find solution of $3(x^2 + 7) = 48$.

    (A) ±4   (B) ±5   (C) ±3   (D) ±2

11. Simplify and write in exponential form: $5^2 \times 5^7 \times 5^{12}$.

    (A) 5^3 (B) 5^7 (C) 5^{21} (D) None of these

12. How many natural numbers lie between 25^2 and 26^2 ?
    (A) 49   (B) 50   (C) 51   (D) 52

13. The sum of all the exterior angles in an 11 sided polygon is:
    (A) 360   (B) 590   (C) 1620   (D) 180

14. Product of a rational number $-\dfrac{4}{7}$ and its additive inverse is:

    (A) $\dfrac{16}{49}$ (B) 1   (C) $-\dfrac{16}{49}$ (D) –1

15. Evaluate: $\dfrac{5}{7} - 3 + \dfrac{2}{7}$

    (A) 5   (B) 7   (C) 2   (D) –2

Assertion and Reason Questions (16-20)

Each of the given below consists of two paired statements: Statement 1 (Assertion) and Statement 2 (Reason) connected by the term "because". Mark the appropriate answer using the key given below:

(A) Both assertion and reason are true, and the reason is the correct explanation of the assertion.

(B) Both assertion and reason are true, but the reason is not the correct explanation of the assertion.

(C) The assertion is true, but the reason is false.

(D) The assertion is false, but the reason is true.

16. **Assertion (A):** The cube root of –2.744 is –1.4.
    Reason (R): The cube root of a positive perfect cube is positive.

17. **Assertion (A):** $(2-1+3-1+5-1)^0$ is equal to 7.

    Reason (R): Any non-zero number raised to power 0 is 1.

18. **Assertion (A):** (9, 12, 15) are Pythagorean triplets.

    Reason (R): For any natural number $m > 1$, we have $2m,\ m^2-1,\ m^2+1$ as Pythagorean triplets.

19. **Assertion (A):** $16^3 = 4096,\ 26^3 = 17576$

    Reason (R): The cube of number ending with digit 6, will also ends with digit 6.

20. **Assertion (A):** Integers are associative for addition.
    Reason (R): The associative property states that the sum or the product of three or more numbers changes if they are grouped in a different way.
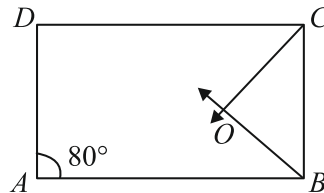
(SECTION – B)

21. Find the number of sides of a regular polygon if each of its interior angle is 144°.

22. Solve for $x : 3-(4x-5) = 2(x+1)$.

23. Write a Pythagorean triplet whose one of the members is 6.

24. Find the smallest number by which 1125 should be multiplied to obtain a perfect cube.

25. Find: $\dfrac{2}{5} \times \left(\dfrac{-3}{7}\right) - \dfrac{3}{7} \times \dfrac{19}{5}$.

(SECTION – C)

26. Simplify: $\dfrac{\left(3x^2\right)^{-5}\left(10y\right)^{-5} \times 125}{\left(5xy^2\right)^{-7} \times \left(6x\right)^{-5}}$

27. Solve the following equation: $\dfrac{x-1}{2} - \dfrac{x-2}{3} = \dfrac{3x-4}{6}$.

28. Find $\sqrt{15129}$ and hence evaluate: $\dfrac{\sqrt{151.29} + \sqrt{1.5129}}{\sqrt{151.29} - \sqrt{1.5129}}$

29. Find the smallest number by which 3087 should be divided to get a perfect cube.

30. Find the reciprocal of $\left(\dfrac{-1}{4}\right)^{-3} \div \left(\dfrac{3}{8}\right)^{-2}$.

31. Compare the following numbers:

    (i) $2.7 \times 10^{12};\ 1.5 \times 10^8$ **(ii)** $4 \times 10^{14};\ 3 \times 10^{17}$

32. **(i)** Find the value of a if $\left(\dfrac{6}{7}\right)^{-5} \times \left(\dfrac{7}{6}\right)^{-3} = \left(\dfrac{6}{7}\right)^{2a+2}$

(ii) If $\dfrac{p}{q} = \left(\dfrac{3}{2}\right)^{-2} \div \left(\dfrac{6}{7}\right)^{0}$, find $\left(\dfrac{p}{q}\right)^{-3}$

33. **(i)** The opposite angles of a parallelogram are $(3x+5)°$ and $(61-x)°$. Find the measure of all angles of parallelogram.

(ii) In figure, $ABCD$ is ‖gm with $\angle A = 80°$, the internal bisectors of $\angle B$ and $\angle C$ meet at O. Find the measure of all angles of $\triangle BCO$.

34. Find the smallest whole number that should be added to 1251 in order to obtain a perfect square number. Also, find out the perfect square and square root of the square number so obtained.

35. Solve: $\dfrac{6x^2 + 13x - 4}{2x+5} = \dfrac{12x^2 + 5x - 2}{4x+3}$

36. In the given figure, there is a trapezium $MNOP$. Angle bisector of $\angle M$ and $\angle N$ meet at point W and angle bisector of $\angle O$ and $\angle P$ meet at point X on the side MN of trapezium $MNOP$.
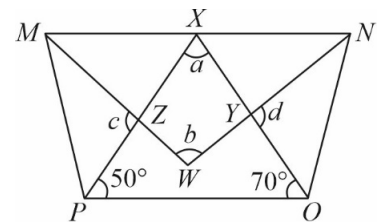
By using the figure give the answers to following questions:

(i) What is the value of a?

(A) 80°   (B) 60°   (C) 90°   (D) 70°

(ii) What is the value of d?

(A) 70°   (B) 60°   (C) 80°   (D) 90°

(iii) What is the value of c?

(A) 90°   (B) 70°   (C) 50°   (D) 80°

(iv) What type of triangle is POX?

(A) Acute angle triangle   (B) Obtuse angle triangle

(C) Right angle triangle   (D) None of these

37. During dance practice in school 6570 students of different schools are arranged in rows such that the number of students in each row is equal to the number of rows. In doing so, the instructor finds out that 9 children are left out.

By using the above information, answer the following questions:

(i) Find the number of children in each row of the square.

(A) 81 **(B)** 61 **(C)** 71 **(D)** 91

(ii) What is the number of students forming a square?

(A) 6250 **(B)** 6760 **(C)** 6561 **(D)** 6769

(iii) Find square root of number of students left out.

(A) 2 **(B)** 3 **(C)** 4 **(D)** 5

38. It is common that government revises fares from time to time based on various factors such as taxes, economy and inflation, for various vehicles like auto-rickshaw, taxis and radio cab etc. The auto and Taxi charge in a city comprise of fixed charge and the charge for the distance covered. Few situations are given below in the form of questions. Find the correct option.

(i) If the fixed charge in a city is ₹ x and charge per km is ₹5 and total fare is ₹60, then find the linear equation for the journey of 10 km.

(A) $x + 50 = 60$ **(B)** $x - 50 = 60$

(C) $x + 50 = 50$ **(D)** None of these

(ii) In the above question, what is the value of fixed charge?

(A) ₹20 **(B)** ₹5 **(C)** ₹10 **(D)** ₹15

(iii) If in a city a person has to pay ₹110 for a journey of 15 km and fixed charge is ₹20, then what is the charge per km?

(A) ₹12 **(B)** ₹6

(C) ₹8 **(D)** no fixed charge

(iv) If in a city fixed charge is double of the charge per km and a person paid ₹75 for a journey of 1 km, then what are the charges per km?

(A) ₹25 **(B)** ₹20 **(C)** ₹50 **(D)** ₹35