AN EDUCATIONAL INSTITUTE

Practice Paper (Mid-Term) — Set 4

(Based on Ganita Prakash – Part I)

Session: 2026-27 CLASS – VIII

SUBJECT – MATHEMATICS

Time Allowed: 2 $\frac{1}{2}$ hours **Maximum Marks: 60**

GENERAL INSTRUCTIONS:

Read the following instructions carefully and follow them:

(i) This question paper contains 16 questions. All questions are compulsory.

(ii) Question paper is divided into FIVE sections – Section 'A', 'B', 'C', 'D' and 'E'.

(iii) In section 'A' question number 1 have 12 multiple choice subparts carrying 1 mark each.

(iv) In section 'B' question number 2 to 7 are Objective type questions carrying 2 marks each.

(v) In section 'C' question number 8 to 10 are Short Answer (SA) type questions carrying 3 marks each.

(vi) In section 'D' question number 11 to 13 are Long Answer (LA) type questions carrying 5 marks each.

(vii) In section 'E' question number 14 to 16 are source $\frac{based}{case}$-based questions, whose subparts are of 1, 1 and 2 marks respectively.

(viii) There is no overall choice. However, internal choice has been provided in 1 question of section 'B', 1 question of section 'C', 2 questions of section 'D', and in each subpart of source $\frac{based}{case}$-based question carrying 2 marks in section 'E'. You have to attempt only one of the alternatives in all such questions.

(ix) Draw neat figures wherever required.

(x) Use of calculators is NOT allowed.

SECTION – A

Question 1 consists of Multiple-Choice questions (i–xii) of 1 mark each.

Choose the appropriate option from the given options: ***12×1= 12***

1.(i) $5^0 + 5^{-1}$ is equal to: **[1]**

(a) $\frac{6}{5}$	(b) 0
(c) 1	(d) 5

(ii) If y = kx and y = 20 when x = 4, find k, and then find y when x = 9. **[1]**

(a) 40	(b) 42
(c) 45	(d) 48

(iii) In an isosceles trapezium, the base angles at each base are: **[1]**

(a) supplementary	(b) equal
(c) complementary	(d) unequal

(iv) The cube root of (−1000) is: **[1]**

(a) 10	(b) −10
(c) 100	(d) −100

(v) Find the digital root of 123456. **[1]**

(a) 1	(b) 2
(c) 3	(d) 4

(vi) $(p - q)^2 + 4pq$ equals: **[1]**

(a) $(p + q)^2$	(b) $(p - q)^2$
(c) $p^2 + q^2$	(d) $4pq$

(vii) The value of XCIV (in Roman numerals) is: **[1]**

(a) 94	(b) 96
(c) 104	(d) 106

(viii) The standard form of 82,00,00,000 is: **[1]**

(a) 8.2×10^7	(b) 8.2×10^8
(c) 82×10^7	(d) 8.2×10^9

(ix) Check whether the following are proportional: 15 : 20 :: 45 : 60 **[1]**

(a) Yes, they are proportional	(b) No, they are not proportional
(c) Cannot be determined	(d) Only if reversed

(x) The number of diagonals in a pentagon is: **[1]**

(a) 3	(b) 4
(c) 5	(d) 6

(xi) Which digit can NEVER be the units digit of a perfect square? **[1]**

(a) 1	(b) 4
(c) 7	(d) 9

(xii) Find the general form of a number that leaves remainder 5 when divided by 9. **[1]**

(a) $9k + 5$	(b) $5k + 9$
(c) $9 - 5k$	(d) $k + \frac{5}{9}$

SECTION-B

Question 2 to 7 is Objective type questions of 2 marks each ***6×2=12***

2. Find the smallest number that must be added to 1750 to make it a perfect square. **[2]**

3. Simplify: $(4^{-1} \times 4^3) \div 4^0$ **[2]**

4. Two adjacent angles of a parallelogram are in the ratio 5 : 7. Find both angles. **[2]**

5. (a) Write DCCXLV in Hindu-Arabic numerals.

OR

(b) Find the smallest multiple of 8, lying between 100 and 200, whose digits add up to 9. **[2]**

6. The number of days needed to complete a job is inversely proportional to the number of workers. 6 workers complete a job in 10 days. How many days will 15 workers take? **[2]**

7. Find the value of $(3m + 2n)(3m - 2n)$ using a suitable identity, when $m = 5$, $n = 3$. **[2]**

SECTION-C

Question 8 to 10 is Short Answer type questions of 3 marks each ***3×3 = 9***

8. Add the following Roman numerals without converting them to Hindu-Arabic numerals:

(i) DXLIV + CCXIX
(ii) MCDXLIV + DXII

[3]

9. (a) In rectangle PQRS, diagonals intersect at O. If $\angle POQ = 68°$, find the other three angles formed at O, stating the property used.

OR

(b) WXYZ is a parallelogram with $\angle W = (4x - 10)°$ and $\angle Y = (2x + 30)°$. Find the value of x and all four angles. **[3]**

10. Expand the following:

(i) $(5a + 2b)^2$
(ii) $(7 - 2x)(7 + 2x)$

[3]

SECTION-D

Question 11 to 13 is Long Answer type questions of 5 marks each ***3×5=15***

11. (i) Find the smallest number by which 6750 must be divided so that the quotient is a perfect cube. Also find the cube root of the quotient.

(ii) Find the side of a square whose area is 20.25 m^2.

[5]

12. (i) Simplify: $9^{x+1} \div 9^{2x-1}$

(ii) If $m^{-3} = \frac{1}{64}$, find m.

[5]

OR

(i) Simplify: $(6^{-1} \times 6^4) \div 6^2$
(ii) Find p if $4^p = \frac{1}{16}$.

[5]

13. Solve the following puzzles:

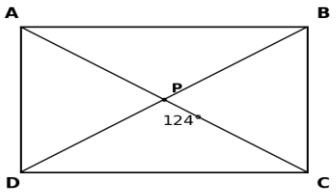
(i) XY × 6 = ZYX (find the digits X, Y, Z)
(ii) 7p3q5 is divisible by 15. Find any three possible pairs of values for p and q.
(iii) Write the general form of a number that is both even and a multiple of 5.

[5]

SECTION-E

Question 14 to 16 is Source-based/ Case Study questions of 4 marks each ***3×4=12***

14. In rectangle ABCD, diagonals AC and BD intersect at point P. $\angle APB = 124°$, as shown in the figure.



Based on the above information, answer the following:

(i) Find $\angle BPC$. [1 Mark]
(ii) (a) Find $\angle CPD$. [2 Marks]

OR

(ii) (b) Find $\angle DPA$. [2 Marks]
(iii) If AP = 5 cm, find the length of diagonal AC. [1 Mark]

15. A student is learning to use algebraic identities for mental math. She uses $a^2 - b^2 = (a + b)(a - b)$ to compute products quickly.

Based on the above information, answer the following:

(i) Find 59×61 using this identity. [1 Mark]
(ii) Find 88×92 using this identity. [1 Mark]
(iii) (a) Find 3.9×4.1 using this identity. [2 Marks]

OR

(iii) (b) Show, using $a = 3$ and $b = 4$, that $(a + b)^2$ is NOT equal to $a^2 + b^2$, and explain the missing term. [2 Marks]

16. A recipe for 4 people needs 250 g of rice. Amaya wants to cook for a celebration of 18 people.

Based on the above information, answer the following:

(i) Find the amount of rice needed for 18 people. [1 Mark]
(ii) If she has 1 kg (1000 g) of rice, how many people can she feed? [1 Mark]
(iii) (a) Find the amount of rice needed for 30 people. [2 Marks]

OR

(iii) (b) Check whether the following are in proportion: 4 people : 250 g :: 10 people : 625 g. [2 Marks]

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