

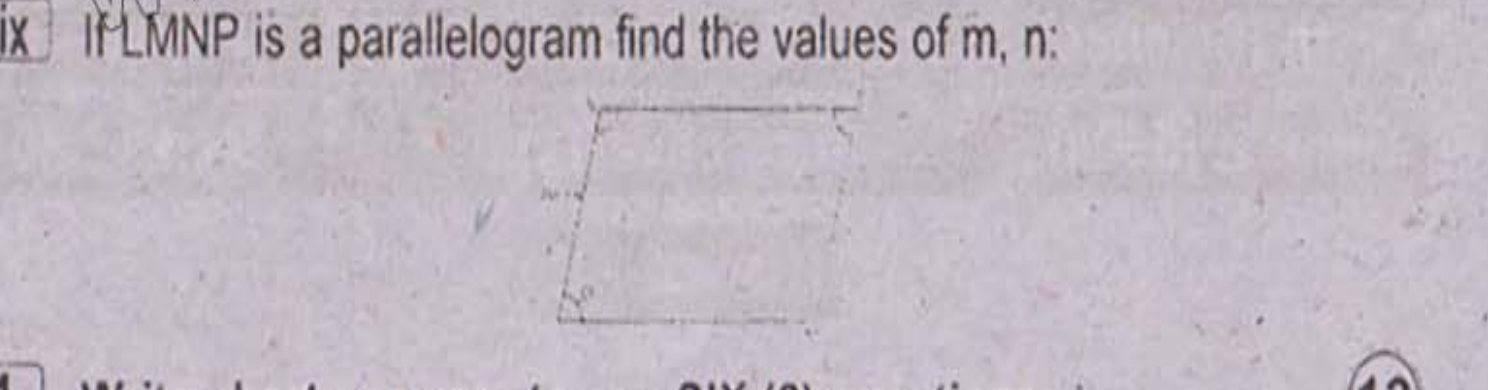
**(Group - I)**

**2. Write short answers to any SIX (6) questions:** (12)

- i If  $B = A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$  then verify that  $(B^1)^1 = B$
- ii If  $\begin{bmatrix} a+3 & 4 \\ 6 & b-1 \end{bmatrix} = \begin{bmatrix} -3 & 4 \\ 6 & 2 \end{bmatrix}$  then find a, b:
- iii Simplify:  $5^2 \div (5^2)^1$
- iv Evaluate:  $i^{50}$
- v Find the value of x  $\log_{625} 5 = \frac{1}{4}x$
- vi Express the given number in scientific notation: 416.9
- vii Simplify the given expression:  $\frac{(x+y) - 4xy}{(x-y)^2}$
- viii Simplify:  $\sqrt{21} \times \sqrt{7} \times \sqrt{3}$
- ix Factorize:  $4x^2 - 16y^2$

**3. Write short answers to any SIX (6) questions:** (12)

- i Find H.C.F:  $102xy^2z, 85x^2yz, 187xyz^2$
- ii Solve the equation:  $\sqrt{\frac{x+1}{2x+5}} = 2, x \neq -\frac{5}{2}$
- iii Solve for x  $|2x + 5| = 11$
- iv Writing in the form of  $y = mx + c$  find the value of m and c:  
 $x-2y=-2$
- v Verify whether the point (2,3) lies on the line  $2x-y+1 = 0$  or not.
- vi Find the mid-point of the line segment joining the pair of points A(0,0) and B(0,-5)
- vii Find the distance between the pair of points: A(9,2), B(7,2)
- viii If  $ABC \cong LMN$ , find the value of x:



**4. Write short answers to any SIX (6) questions:** (12)

- i Define ratio.
  - ii In equilateral triangle ABC,  $\overline{AD}$  is bisector of angle A, then find the value of  $x^\circ, y^\circ$  and  $z^\circ$ :
- 
- iii What will be the angle for shortest distance from an outside point to the line?
  - iv Verify that the triangle having the following measures of the sides is right angled  $a = 5\text{cm}, b = 12\text{cm}$  and  $c = 13\text{cm}$ .
  - v Find the value of x in the figure:
- 
- vi Find the area of figure.
- 
- vii Define area of the figure.
  - viii Construct  $\triangle ABC$  in which:  $m\overline{AB} = 2.5\text{cm}, m\angle A = 30^\circ, m\angle B = 105^\circ$
  - ix Define circumcentre.

**PART - II**

Note: Attempt any Two questions.

**5. (a) Solve the system of linear equations by Cramer's rule:** (4)

$$\begin{aligned} 2x - 2y &= 4 \\ 3x + 2y &= 6 \end{aligned}$$

(b) Simplify:  $\left(\frac{a^p}{a^q}\right)^{p+q} \cdot \left(\frac{a^q}{a^r}\right)^{q+r} \div 5(a^p \cdot a^r)^{p+r}, a \neq 0$  (4)

**6. (a) Use log table to find the value of:**  $\sqrt[3]{25.47}$  (4)

(b) If  $x+y+z=12$  and  $x^2+y^2+z^2=64$  then find the value of  $xy+yz+zx$  (4)

**7. (a) Factorize:**  $x^2 - y^2 - 4xz + 4z^2$  (4)

(b) Find the H.C.F. by the division method:

$$x^3 + 3x^2 - 16x + 12, x^3 + x^2 - 10x + 8$$
(4)

**8. (a) Solve the equation:**  $\frac{5(x-3)}{6} - x = \frac{x}{9}$  (4)

(b) Construct the triangle ABC and draw the perpendicular bisector of its sides. (4)

$m\overline{BC} = 2.9\text{cm}, m\angle A = 30^\circ, m\angle B = 60^\circ$

**9. (a) Prove that any point on the right bisector of a line segment is equidistant from its end points.** (4)

(b) Prove that any point on the bisector of an angle is equidistant from (4)