

(Subjective)

**NOTE: Section I is compulsory. Attempt any THREE (3) questions from Section II. However question No. NINE (9) is compulsory.**

(Section-I)

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

**i** Check matrix is singular or non-singular  $D = \begin{bmatrix} 5 & -10 \\ -2 & 4 \end{bmatrix}$

**ii** Define identity matrix.

**iii** Simplify  $\sqrt{25x^{10n}y^{8m}}$

**iv** Write in a+ib form  $(\sqrt{5} - 3i)^2$

**v** Write in the form of a single logarithm  $2\log x - 3\log y$

**vi** Find value of x when  $\log_x 64 = 2$

**vii** Simplify  $\left(\sqrt{2} + \frac{1}{\sqrt{3}}\right)\left(\sqrt{2} - \frac{1}{\sqrt{3}}\right)$

**viii** Evaluate the value of  $\frac{x^3y - 2z}{xz}$  when  
 $x = 3, y = -1, z = -2$

**ix** Factorize  $144a^2 + 24a + 1$

**3 Write short answers to any SIX (6) questions. (6×2=12)**

**i** Find the square root using factorization.

$$\frac{1}{16}x^2 - \frac{1}{12}xy + \frac{1}{36}y^2$$

**ii** Solve the equation  $\sqrt[3]{2x-4} - 2 = 0$

**iii** Define Non-Strict inequalities.

**iv** Define Collinear Points.

**v** Find the value of "F" at C=10 when  $F = \frac{9}{5}C + 32$

**vi** Find the distance between two points.

$$A(3, -11), B(3, -4)$$

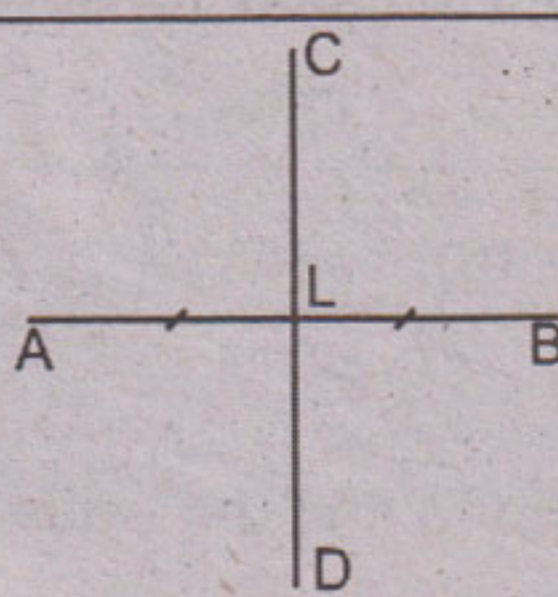
**vii** Define equilateral triangle.

**viii** What is meant by A.S.A.S.A

**ix** If one angle of a parallelogram is  $130^\circ$ . Find the measures of its remaining angles.

**4 Write short answers to any SIX (6) questions. (6×2=12)**

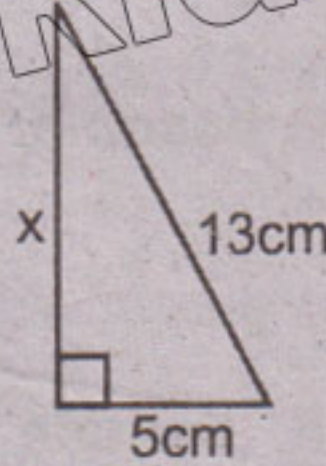
**i** In the given figure  $\overline{CD}$  is right bisector of the line segment  $\overline{AB}$ . If  $m\overline{AB} = 6\text{cm}$  then find  $m\overline{AL}$ .



**ii** 2cm, 4cm and 7cm are not lengths of the triangle. Give reason.

**iii** Define Congruent triangles.

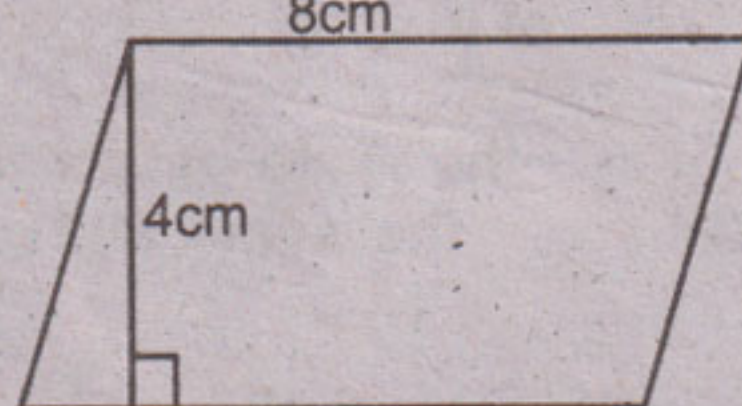
**iv** Find the unknown value in the given figure.



**v** Verify that  $a=16\text{cm}$ ,  $b=30\text{cm}$  and  $c=34\text{cm}$  are sides of a right angle triangle.

**vi** Define Rectangular Region.

**vii** Find the area of the given figure.



**viii** Define Circumcentre.

**ix** Construct  $\triangle ABC$  in which

$$m\overline{AB} = 4.2\text{cm}, m\overline{BC} = 3.9\text{cm}, m\overline{CA} = 3.6\text{cm}$$

(Section-II)

**Note: Solve any THREE (3) questions. However question No. NINE (9) is compulsory.**

**5 (a) Solve by using the matrix inversion method**

$$2x + y = 3, 6x + 5y = 1$$

**i** Simplify  $\sqrt{\frac{(216)^{2/3} \times (25)^{1/2}}{(.04)^{-1/2}}}$

Use logarithm to find the value of  $\frac{0.678 \times 9.01}{0.0234}$

If  $m+n+p=10$  and  $mn+np+mp=27$  then find the value of  $m^2+n^2+p^2$

Factorize the following cubic polynomial by factor

$$m^3 - x^2 - 22x + 40$$

and the value of 'k' for which the following expression will become a perfect square

$$x^2 + 37x^2 - 42x + k$$

$$\text{Simplify } \frac{x}{3x-6} = 2 - \frac{2x}{x-2}$$

Construct the triangle ABC and draw the

of angles  $m\overline{AB} = 4.2\text{cm}$ ,  $m\overline{BC} = 6\text{cm}$ ,

an angle, equidistant from its arms, of it.

(The same base and between same the same altitude) are equal in