

Note: Time allowed for section B and C is 2 hours and 40 minutes.

SECTION "B"

Marks: 36

II. Attempt any NINE Parts out of the following. Each Part carries equal marks.

i. If $A = \begin{bmatrix} 13 & -10 \\ 2 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 5 & 8 \\ -3 & 6 \end{bmatrix}$ determine whether $AB=BA$, or not?

ii. Simplify: (i) $(7s^2t^3)^2$ (ii) $(-3v^2w)^4$

iii. Find the value of 't': $\log_7 7 + \log_7 8 - \log_7 4 = \log_7 t$

iv. Evaluate the following when $d = -3$: $\frac{3d^3 - 2d^2 + 4}{d + 5}$

v. Find the value of $s^2 + t^2$ if $s+t=11$, $s-t=7$.

vi. Without performing division, find the remainder when $3y^2 + 4y - 2$ is divided by $y - 3$.

vii. Simplify: $\frac{q^2 + 5q + 4}{4p^3} \times \frac{2p^2}{q^2 + 3q + 2}$

viii. Solve: $8\sqrt{p} + 5 = \sqrt{p} - 9$.

ix. Solve and plot on number line: $\frac{2x-2}{6} > \frac{5}{2}$

x. Prove that the points $A(1, -1)$, $B(5, 2)$ and $C(9, 5)$ are collinear.

xi. Prove that: If two angles of a triangle are congruent, then the sides opposite to those angles are congruent.

xii. Prove that: Any point on the right bisector of a line segment is equidistant from end points of the segment.

SECTION "C"

Marks: 24

Note: Attempt any THREE questions of the following. Each question carries equal Marks.

III. Prove that: If two opposite sides of a quadrilateral are congruent, then it is a parallelogram.

IV. Prove that: From a point outside a line, the perpendicular is the shortest distance from the point to the line.

V. Prove that: In a right-angled triangle, the square of the length of hypotenuse is equal to the sum of the squares of the lengths of the other two sides.

VI. Construct $\triangle KLM$, for $m\overline{KL} = 4.8\text{cm}$, $m\overline{LM} = 3.9\text{cm}$, and $m\angle L = 30^\circ$