

(Full Course)

Time Allowed: 2.40 Hours"Section - B"Marks: 36

Q-2. Attempt any nine (9) parts:-

(i) If  $E = \begin{vmatrix} 7 & -2 \\ 8 & 4 \end{vmatrix}$ ,  $F = \begin{vmatrix} 15 & -7 \\ 3 & -2 \end{vmatrix}$  determine whether  $EF = FE$ , or not?

(ii) Simplify:

(a)  $(9l^3m^2)^5$

(b)  $(-2x^2y^5)^3$

(iii) Find the value of 'l':  $\log_4 9 + \log_4 7 - \log_4 3 = \log_4 l$ (iv) Evaluate the following when  $y = -4$ :  $\frac{5y^2 - 3y - 2}{y - 2}$ (v) Find the value of  $st$  if  $s + t = 12$ ,  $s - t = 4$ .(vi) Without performing division, find the remainder when  $7h^3 - 6h^2 + 5h - 3$  is divided by  $h + 2$ .(vii) Simplify:  $\frac{8}{z^2 - 4} + \frac{8}{z + 2}$ (viii) Solve:  $\sqrt{7x + 9} - 2 = 8$ (ix) Solve and plot on number line:  $\frac{y-1}{4} \leq \frac{1-x}{2}$ ,  $x \in \mathbb{Z}$ (x) Prove that the points:  $P(1,5)$ ,  $Q(2,4)$  and  $R(3,3)$  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 (3) questions:-**

Q-3. Prove that: If two opposite sides of a quadrilateral are congruent, then it is a parallelogram

Q-4. Prove that: From a point outside a line, the perpendicular is the shortest distance from the point to the line.

Q-5. Prove that: If a line segment intersects the two sides of a triangle in the same ratio then it is parallel to the third side.

Q-6. 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.

Q-7. Prove that: Parallelograms on equal bases and having the same altitude are equal in area.

Q-8. Construct  $\Delta PQR$ , for:

$m\overline{QR} = 6.5\text{Cm}$

$m\angle P = 30^\circ$  and

$m\angle R = 60^\circ$