PR IX (01) 23

Mathematics (New)

9th (Fresh/Reappear)

Note: Time allowed for Section – B and Section – C is 2 Hours and 40 minutes.

Section – B

Marks: 36

Q-II Attempt any NINE parts. Each part carries FOUR marks.

1. If $G = \begin{bmatrix} 17 & 8 \\ 5 & 3 \end{bmatrix}$, $H = \begin{bmatrix} -8 & 4 \\ 5 & 9 \end{bmatrix}$ determine whether GH = HG, or not?

2. Simplify: (i) $(-6x^2y)^3$ (ii) $(5a^4 b^7)^2$

3. Find the value of 'a': $\log_{\sqrt{8}} 7 - \log_{\sqrt{8}} 3 = \log_{\sqrt{8}} a$

4. Evaluate the following when $p = -1$: $\dfrac{7p^2 - 6p + 2}{2p - 5}$

5. Find the value of uv if $u + v = 13$, $u - v = 7$.

6. Without performing division, find the remainder when $2p^3 + 4p^2 - 7p + 4$ is divided by $p - 2$.

7. Simplify: $\dfrac{2l}{3l - 12} + \dfrac{l^2 - 2l}{l^2 - 6l + 8}$

8. Solve: $\sqrt{2x - 1} - 7 = 3$

9. Solve and plot on number line: $7 - 3t \geq 1$, $x \in N$

10. Prove that the points L(2, –2), M(–3, 8) and N(–8, 18) are collinear.

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

12. 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 FOUR questions. All questions carry equal marks.

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

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

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

Q-VIII Construct ΔKLM for $m\overline{KL} = 5cm$, $m\angle K = 105°$ and $m\angle L = 45°$.