Mathematics

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

SECTION-B

Q2: Attempt any NINE parts. Each part carries FOUR marks.

1) Solve the following system of linear equations using Cramer's rule: $2x-y=4,\ x-2y=7$

2) If $Z_1=2+3i$ and $Z_2=3-2i$, find $\frac{Z_1}{Z_2}$.

3) Simplify with the help of Logarithm: $\frac{83\times(17.1)^2}{29}$

4) Find the value of a^2+b^2, if $(a+b)=2$ and $(a-b)=9$

5) Rationalize and simplify the expression: $\frac{5}{5-\sqrt{5}}$

6) Factorize: $49a^2c-64b^2c$

7) Find L.C.M of $x^2-4x-12$, $x^2-9x+18$ and $x^2-10x+24$ using factorization method.

8) Solve the linear equation: $\frac{(4x-10)}{4}=\frac{x-1}{4}$

9) Solve the following inequality and plot the solution on number line: $\frac{x-4}{x+5}>4$; where $x\in R$

10) Using distance formula, shows that the points A(-2,-7), B(-1,-3), C(0,1) are collinear.

11) Prove that: if two angles of a triangle are congruent, then the sides opposite to them are also congruent.

12) Prove that the line segment, joining the midpoints of two sides of a triangle, is parallel to the third side and is equal to one half of its length.

SECTION-C Marks: 24

Note: Attempt any FOUR questions. All questions carry equal marks.

Q3: Prove that any point on the bisector of an angle is equidistant from its arms.

Q4: Prove that if two sides of a triangle are unequal in length, the longer side has an angle of greater measure opposite to it.

Q5: Prove that if two triangles are similar, then the measures of their corresponding sides are proportional.

Q6: A ladder whose foot is 2.8m from the front of a house reaches a window 6.5m above the ground. Calculate the length of the ladder.

Q7: Prove that parallelogram on the same base and lying between the same parallel lines (or of the same altitude) are equal in area.

Q8: Construct a triangle ABC, given that $m\overline{AB}=5cm,\ m\overline{BC}=5cm$ and $m\angle A=60°$.