

CSSR & SRRM DEGREE & PG COLLEGE
(AUTONOMOUS)

UG (CBCS) REGULAR EXAMINATIONS, OCT- 2025

BSc (BOT) Honours, SEMESTER-III

Multidisciplinary Course**BASIC MATHEMATICS**

(w.e.f. 2024-25 Admitted Batch)

Time: 2 hrs.

(No additional sheet will be supplied)

Max. Marks: 50**I. Answer any FIVE of the following. Each question carries 10 marks.****5 × 10 = 50 M**

1. (a) Define a Set and equality of sets with example.
(b) If $A = \{2,4,6,8,10\}$ and $B = \{1,4,6,9,11\}$ then find $A \cup B$ and $A \cap B$.
2. Simplify the surds a) $\sqrt{108}$ b) $\frac{2+\sqrt{3}}{2-\sqrt{3}}$ c) $\sqrt{147} - 2\sqrt{12}$.
3. Solve for x for the following
 - a) $\log_2(x - 1) = 3$
 - b) $\log_3(x^2 + 5) = 2$
 - c) $\log_2(x + 1) = 1$.
4. Find the point that divides the line joining (2,3) and (10,7) in the ratio 3:2 internally.
5. a) Find the distance between two points (6,11) & (8,13).
b) Find the equation of locus of a point which is equidistance from the points $A(-3,2)$ and $B(0,4)$.
6. Find the area of the triangle with vertices (2,7), (1,1), (10,8).
7. Find the equation of locus of P so that area of the triangle $PAB = 8.5$ for given two points $A(2,3)$ and $B(-3,4)$.
8. a) Reduce the equation $5x - 4y = 10$ into slope intercept form.
b) Find the equation of the Straight line passing through the points (5,6) and (3,8).
9. Given $A = \begin{bmatrix} -1 & 2 \\ 3 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 2 \\ 3 & 0 \end{bmatrix}$. Find a) AB b) BA c) A^T d) B^T and e) Trace of AB .
10. Find the inverse of the matrix $A = \begin{bmatrix} -2 & 6 \\ 3 & 8 \end{bmatrix}$ by finding its determinant.

