School of Biomedical Science

B.Tech Biotechnology
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem I - C1UC123B - Elementary Mathematics-I

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Find the roots of the equation $2x^2 - 5x + 3 = 0$, by factorization. **K2 (2)**

2) Find the discriminant of the quadratic equation $2x^2 - 4x + 3 = 0$, and hence explain the nature of its roots. **K1 (3)**

3) Solve 7x+3<5x+9. Show the graph of the solutions on number line. **K2 (4)**

4) Solve the inequalities: **K2 (6)**

1. $\frac{(2x-1)}{3} \geq \frac{(3x-2)}{4} - \frac{(2-x)}{5}$
2. $3(2-x) \geq 2(1-x)$

5) Find the points on the x-axis, whose distances from the line $\frac{x}{3} + \frac{y}{4} = 1$ are 4 units. **K3 (6)**

6) Determine the solution of the system of inequalities: **K3 (9)**
$3x - 7 < 5 + x$
$11 - 5x \leq 1$
And represent the solution on the number line.

7) How many two-digit numbers are divisible by 3? **K4 (8)**

8) Find the sum of first n terms and the sum of first 5 terms of the geometric series $1 + \frac{2}{3} + \frac{4}{9} + \dots$ **K4 (12)**

OR

How many terms of the G.P. $3, \frac{3}{2}, \frac{3}{4}, \dots$ are needed to give the sum $\frac{3069}{512}$? **K4 (12)**