PES UNIVERSITY, BANGALORE

(Established under Karnataka Act 16 of 2013)

Department of Science and Humanities

B Tech: Second Semester
Session: Feb-May 2025
Subject Name: Engineering Mathematics II (4-0-0-4-4)
Subject Code: UE24MA141B

MATLAB - PRACTICE PROBLEMS:

Unit 3
Integral Calculus

1. **Find the area under the curve $y= x^2+1$ between x=0 and x=3 in MATLAB code.**

output: area = 12

2. A lamina with density function ρ(x,y)=x+y is bounded by the region $0 \leq x \leq 2$ and $0 \leq x \leq 3$ Find the mass of the lamina.

output: mass = 15

3. Evaluate ytan(x)+xcos(y).

output: q = 30.0900

4. The charge density in a region inside a cube with side length 2 and corners at (0,0,0) (0,0,0) (0,0,0) and (2,2,2) (2,2,2) (2,2,2) is given by ρ(x,y,z)=x+y+z. Find the total charge in the region.

output: Total_Charge = 24.0000

5. Compute the triple integral of the function x+y+zx over the region where x ranges from 2 to 5, y ranges from 0 to 4, and z ranges from 3 to 7.

output: q = -283.5000