ABC College of Engineering and Technology

Engineering Mathematics - Question Paper

1. Solve the differential equation: dy/dx + y tan(x) = sin(x)

2. Find the Laplace transform of f(t) = t^2 * e^(3t)

3. Determine the inverse of the matrix: [[1, 2], [3, 4]]

4. Use Gauss elimination to solve the system of equations:

   x + y + z = 6

   2x + 3y + z = 14

   x - y + 2z = 4

5. Expand ln(1 + x) using Taylor's series up to 4 terms.

6. Find the eigenvalues and eigenvectors of the matrix: [[2, 0], [0, 3]]

7. Find d^2z/dxdy if z = x^2 * y + y^2 * x

8. Find the Fourier series expansion of f(x) = x in the interval (-pi, pi)