

Q1	<p>Consider the following matrix:</p> $A = \begin{vmatrix} 0 & 1 \\ 1 & 0 \end{vmatrix}$ <p>Compute $A^{47} - A^{20}$ using only diagonalization</p>	Mark 25
Q2	<p>For the below function:</p> <p>1. $f(t) = 7t + 6e^t - 2e^{-t} - 10$</p> <p>2. $f(t) = te^{at} \sin bt$</p> <p>Find the Laplace transform of each</p>	Mark 25
Q3	<p>Solve the Following Systems of Linear Equations using Gauss Elimination</p> $14x - 2y - 4z = 0$ $18x - 2y - 6z = 0$ $4x + 8y - 14z = 0$	Mark 25
Q4	<p>Find the complete solution for the following differential Equation</p> $(D^3 - 2D + 4)y = x^2 + 3x^2 - 5x + 2$	Mark 25

GOOD LUCK