

Daffodil International University

Dept. of Electrical and Electronic Engineering (SUMMER 26)

Quiz: 2

Course Code: 0541-113 Course Title: Linear Algebra and Complex Variable

Section: E

Set-1

Time: 30 minutes

Marks: 15

1. Find the inverse of $A = \begin{pmatrix} -1 & 0 & 3 \\ 3 & 2 & 2 \\ 4 & 0 & -1 \end{pmatrix}$ using block matrix.

2. An Electrical Engineering student is analyzing a DC circuit containing five parallel branches. The currents flowing through the branches are I_1 , I_2 , I_3 , I_4 and I_5 amperes.

Using Kirchhoff's Current Law (KCL) and circuit measurements, the following system of linear equations is obtained:

$$\begin{aligned} I_1 + I_2 + 2 I_3 + I_4 + I_5 &= 5 \\ 2 I_1 + 5 I_2 - 3 I_3 + 2 I_4 &= 3 \\ 4 I_1 + 5 I_2 + 3 I_3 + 2 I_5 &= 7 \end{aligned}$$

Find out whether the system is consistent or not. In case of consistency find the values of I_1 , I_2 , I_3 , I_4 and I_5 .