



National University of Sciences and Technology
College of E&ME
1st Sessional
DE-36 (CE) A&B
Dept. of Basic Sciences and Humanities



Subject Code: **MATH-121** Subject: **Linear ALgebra & ODEs**
Date: **01-04-2015** Time allowed: **1 hr**
Max Marks: **50** Instructors **Dr. Sher Baz Khan**

Question:1	Consider the system of linear equations: $kx + y + z = 1$ $x + ky + z = 1$ $x + y + kz = 1$ For what value(s) of k this system has <ol style="list-style-type: none">1. A unique solution,2. No solution or3. Infinitely many solutions.	Marks: 6+6+6
Question:2	Consider the system of linear equations: $x + y - z = a$ $x - y + 2z = b$ $3x + y + 0z = c$ <ol style="list-style-type: none">1. Find the general solution of the homogeneous system.2. If $a = 1, b = 2$ and $c = 4$, then a particular solution of the inhomogeneous equations if the system is consistent.	Marks: 10+10
Question:3	By using row operations on the following matrix $A = \begin{pmatrix} 2 & 3 & 2 \\ 1 & 0 & 3 \\ 2 & 2 & 3 \end{pmatrix}$ find A^{-1} .	Marks: 12