

National University of Computer and Emerging Sciences
LINEAR ALGEBRA – CS, Fall 2015
Mid-term # 2

Roll# L12-4129 Section _____ Name _____ Date Nov 7, 2015
Time: 90 mins Max Marks: 30

✓ Q#1[10] Let $V = \mathbb{R}^3$ be a vector space and $w = \{(a, b, c) \mid c = 3a - 2b, \text{ where } a, b, c \in \mathbb{R}\}$.
Check whether w is a subspace of V or not?

✓ Q#2[10] Find the rank and nullity of the matrix

$$\begin{bmatrix} -2 & 7 & 4 \\ 4 & 10 & 3 \\ 10 & 13 & 2 \\ 6 & 3 & -1 \\ 4 & -14 & -8 \\ -10 & 11 & 9 \\ -12 & 18 & 13 \end{bmatrix}$$

Q#3[10] Find the eigenvalues and bases for the eigenspaces of A^{25} for

$$A = \begin{bmatrix} -1 & -2 & -2 \\ 1 & 2 & 1 \\ -1 & -1 & 0 \end{bmatrix}$$

character eq.
 $\det(A - \lambda I) = 0$
for find λ values