

# Linear Algebra, EE 10810/EECS 205004

## Quiz 1.6

Student ID: .....; Your Name: .....  
(Dated: October 14th, 2020)

**Integrity:** There is NO space to cross the **Red Line** !!

1. Prove that

if  $\{\bar{A}_1, \bar{A}_2, \dots, \bar{A}_k\}$  is a linearly independent subset,  
of  $\bar{M}_{n \times n}(F)$ ,  
then  $\{(\bar{A}_1)^t, (\bar{A}_2)^t, \dots, (\bar{A}_k)^t\}$  is also linearly independent.

2. Do the polynomials  $(x^3 - 2x^2 + 1)$ ,  $(4x^2 - x + 3)$ , and  $(3x - 2)$  generate  $P_3(\mathcal{R})$  ?

3. Use the Lagrange interpolation formula to construct the polynomial of smallest degree whose graph contains the following points:

$$(-2, -6), \quad (-1, 5), \quad (1, 3).$$