

Name: \_\_\_\_\_  
Student ID: \_\_\_\_\_

## Quiz 11

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

**Question 1.** §4.2 #2f (5 marks) Use the Subspace Test to determine which of the following are subspaces of  $\mathcal{M}_{n \times n}$ .  
The set of all  $n \times n$  matrices  $A$  for which  $A\mathbf{x} = \mathbf{0}$  has only the trivial solution.

**Question 2.** §4.2 #13 (5 marks) Determine whether the following polynomials span  $\mathcal{P}_2$ .

$$p_1 = 1 - x + 2x^2,$$

$$p_2 = 3 + x,$$

$$p_3 = 5 - x + 4x^2,$$

$$p_4 = -2 - 2x + 2x^2$$