Dawson College: **Linear Algebra**: 201-105-05-S3: Fall 2012

Name: _____
Student ID: _____

Quiz 8

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. §3.3 #5 *(2 marks)* Find a unit vector that is orthogonal to both $\mathbf{u} = (1,0,1)$ and $\mathbf{v} = (0,1,1)$.

Question 2. §3.3 #26 *(3 marks)* Find the vector component of **u** along **a** and the vector component of **u** orthogonal to **a**.

$\mathbf{v} = (2,0,1), \quad \mathbf{a} = (1,2,3)$

Question 3. §3.5 #27 *(5 marks)*

(a) *(3 marks)* Find the area of the triangle having vertices $A(1,0,1)$, $B(0,2,3)$, and $C(2,1,0)$.

(b) *(2 marks)* Use the result of part (a) to find the length of the altitude from vertex C to side AB.