

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

## Quiz 7

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.** §3.2 TF (2 marks) Determine whether the statement is true or false, and justify your answer.

If  $\vec{u} \cdot \vec{v} = 0$ , then either  $\vec{u} = 0$  or  $\vec{v} = 0$ .

**Question 2.** §3.2 #23d (3 marks) Find the cosine of the angle  $\theta$  between  $\vec{u}$  and  $\vec{v}$ .

$$\vec{u} = (-2, 2, 3), \vec{v} = (1, 7, -4)$$

**Question 3.** 5.22a (5 marks) Find the point on the line which is closest to the point  $P$ .

$$x = 2 - t, y = 3 + 2t, z = -2 + t, \text{ and } P(5, 6, 1)$$