

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

## Quiz 5

This quiz is graded out of 8 marks. No books, 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.** Let  $S = \{1, 2, 3, 4, 5\}$ .

- (1 mark) Give two permutations of the set  $S$ .
- (1 mark) Is  $(2, 1, 3, 4, 4)$  a permutation of the set  $S$ , justify.
- (2 marks) Determine the parity of the permutation  $(5, 2, 1, 3, 4)$  of the set  $S$ .

**Question 2.** Let  $\mathbf{u} = (1, -2, 3)$ ,  $\mathbf{v} = (-2, 0, 1)$ ,  $\mathbf{w} = (1, 0, -2)$ ,  $P_1(-2, 0)$ ,  $P_2(-1, 2)$ .

- (2 marks) Simplify  $((-2\mathbf{u} + 3\mathbf{v}) + 3\mathbf{u} - 0\mathbf{w})$ .
- (2 marks) Find the vector having initial point  $P_1$  and terminal point  $P_2$ .