

Last Name: \_\_\_\_\_

First Name: \_\_\_\_\_

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

## Quiz 1

**Question 1.** Determine if the sequence converges or diverges. If it converges find the limit.

(a) (4 marks)  $\{n^2 e^{-n}\}$

(b) (4 marks)  $a_n = \frac{\cos^2 n}{2^n}$

**Question 2.** (2 marks) Find a formula for the general term  $a_n$  of the sequence, assuming the pattern of the first few terms continues.

$$\left\{ \frac{1}{2}, -\frac{4}{3}, \frac{9}{4}, -\frac{16}{5}, \frac{25}{6}, \dots \right\}$$