**Quiz for <<Microwave Engineering and Antenna Design>>**

**September 21, 2018**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Score\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Due to the importance of vector analysis in electromagnetics, we take a quiz for it. The score will be counted as the first homework’s.

**Problem 1 (25%):** Suppose we have a vector in a rectangular coordinate system, please prove.

**Problem 2 (25%):** Suppose we have a scalar function in a rectangular coordinate system, please prove.

**Problem 3 (25%):** Suppose we have a vector in a rectangular coordinate system, please prove.

**Problem 4 (25%):** Suppose we have a vectorand a scalar function  in a rectangular coordinate system, please prove.