

**ECE 333 Green Electric Energy**

**Quiz 2**

***Thursday, October 5, 2017***

**Closed book, closed notes, cell phones are not allowed.**

**Show all your work and always indicate the units, as appropriate.**

**Duration: 15 minutes**

**Name:** \_\_\_\_\_ **last 4 digits of your UIN:** \_\_\_\_\_

**Problem 1: [100 points]**

Find the amount of wind energy at  $15\text{ }^{\circ}\text{C}$  and  $1\text{ atm}$  pressure that passes through  $1\text{ m}^2$  of cross-sectional area for the following wind regimes:

(Take the air density at  $15\text{ }^{\circ}\text{C}$  and  $1\text{ atm}$  pressure as  $1.225\text{ kg/m}^3$ ).

(i) **[50 points]** *100 hours at 6 m/s*

(ii) **[50 points]** *50 hours at 3 m/s plus 50 hours at 9 m/s (i.e. an average wind speed of 6 m/s)*