16.881 – Robust System Design

Quiz #1
The Principles of Robust Design

1) The values of signal factors are set by
   a) The designer of the system
   b) The user of the system
   c) The manufacturer of the system
   d) They cannot be set, they vary randomly

2) The values of control factors are set by
   a) The designer of the system
   b) The user of the system
   c) The manufacturer of the system
   d) They cannot be set, they vary randomly

3) Factors that can be used to control the variability of the response, but significantly affect the cost of a product are referred to as _____.

4) Quality control activities that take place during the design of the product or process and before manufacture are called _____ quality control.

5) A response y is known to be governed by the relationship

$$y=ax+b$$

where x is a random variable with a mean of 1 and standard deviation of 1. The losses L due to deviation of y from its target m are given by

$$L(y)=k(y-m)^2$$

Which settings of a and b among those listed will give the lowest value of average quality loss?

a) a=2, b=m
b) a=2, b=m-2
c) a=1, b=m
d) a=1, b=m-1