STAT-319-Term 162-Sec.02
Quiz #5

Name: **ID**

Q 1: A textile fiber manufacturer is investigating a new drapery yarn, which the company claims has a mean thread elongation of 12 kg with a standard deviation of 1.5 kg. The company wishes to test the hypothesis $H_0: \mu = 12$ against $H_1: \mu < 12$ using a random sample of four specimens.

a. What is the type I error probability if the critical region is defined as $\bar{x} < 11.5$ kg.

b. Find β for the case in which the true mean elongation is 11.35

Q 2. An electrical firm manufactures light bulbs that have a length of life that is normally distributed If a sample of 20 bulbs has an average life of 780 hours, and a standard deviation of 38.75 hours. Is there any evidence to conclude that the average length of life is different from 770 hours? Test using α=.05.

Q 3. A machine in a certain factory must be repaired it produces more than 10% defectives among the large lot of products in a day. A random sample of 100 items from the day's production contains 12 defectives, and the supervisor says that the machine must be repaired. Dose the sample support his decision at 0.01 level of significance. Use the p-value.