KFUPM | Term 162 | Date: 23/4/2017
Math & Stat Dept. | STAT 319 | Duration: 20 minutes
Quiz #3

Name: ID#: Section 4 Serial

An electrical firm manufactures light bulbs and claims that the bulbs have a mean life length of 800 hours. Past records show that the life length variance is 1600 hours^2.

a. What is the probability that a randomly selected single bulb will burn out in 740 hours? Justify your answer.

b. What is the probability that a box of 64 bulbs will have a total life length of at least 50880 hours? Justify your answer.

c. Using the box of bulbs in part b before, if an interval estimate for the mean life length of all bulbs produced by this firm is given by [779.15, 800.85], then what is the point estimate and confidence level of the interval estimate?

d. What is the minimum sample size needed to be 98% confident that the maximum error of estimation is no more than half of the one in part c before?