King Fahd University of Petroleum & Minerals
Department of Mathematics & Statistics
STAT-211-Term101-A
Quiz #5

Name: ID: Section: Serial:

Question One (2 + 2 = 4-Points)

A certain brand of flood lamps has a lifetime that is normally distributed with a mean of 3,750 hours and a standard deviation of 300 hours.

a. What proportion of these lamps will last for more than 4,000 hours?

b. What lifetime should the manufacturer advertise for these lamps in order that only 2% of the lamps will burn out before the advertised lifetime?

Question Two (2 + 2 = 4-Points)

A continuous random variable X has the following probability density function:

$$f(x) = (4-x)/8, \quad 0 \le x \le 4$$

Find the following probabilities:

a. $P(X \le 1)$

b. $P(1 \le X \le 2)$

Question Three (1 + 2 +2 +2 = 7-Points)

The time it takes a technician to fix a computer problem is exponentially distributed with a mean of 15 minutes.

a. What is the probability density function for the time it takes a technician to fix a computer problem?

b. What is the probability that it will take a technician less than 10 minutes to fix a computer problem?

c. What is the variance of the time it takes a technician to fix a computer problem?

d. What is the probability that it will take a technician between 10 to 15 minutes to fix a computer problem?