ISE 311/MCE 411 QUIZ 4

Name: _____ ID#:_____Score: _____

Ans.: 1. __ 2. _ 3. __ 4. __ 5.__ 6.__ 7. __ 8. __ 9. __ 10. __

Note: ***Find the closest answer from the choices below for each problem***.

(a)0.0 (b) 0.1 (c) 0.2 (d) 0.3 (e) 0.4 (f) 0. 5
(g) 0.6 (h) 0.7 (i) 0.8 (j) 0.9 (k) 1.0

1. A production line is currently operating with a 5% defective output. A random sample of 10 items was taken from the production line for inspection. Let X denotes the no. of defective parts found in this sample. What's the probability of observing no defective items in this sample?

2. Following the above, what is the probability of observing one or more defective items in the sample?

3. A manufacturing company uses the following inspection plan before shipment. A sample of 3 items from a box of 25 items ready for shipment is inspected. If any defectives are found, the box is rejected; if no defective are found, the box is shipped. What is the probability that a box containing 5 defectives will be shipped?

4. A production line is producing an average 0.7 defective parts per hour. What's the probability of finding no defective parts in a randomly selected hour for inspection?

5. Based on the above. what's the probability of finding one or more defective parts in a randomly selected hour for inspection?

6. If the life of an automobile battery follows an exponential distribution with a mean (μ) of 3 yrs, find the probability that a randomly selected unit will fail before its 1-yr warranty.

7. Following the above, what is the failure rate of the battery (#failure/year)?

8. Suppose Z represents a standard normal random variable. Find Pr (Z > 1.0)

9. The weight of a batch of pumpkins harvested from a local farm follows a normal distribution with a mean of 20 lb and a standard deviation of 3 lb. Find the probability that a randomly selected pumpkin weighs more than 23 lbs.

10. If the size of the pumpkin, measured by its circumference, follows a lognormal distribution with $\mu = 2$ (location parameter) and $\sigma = 1$ (scale parameter). What is the probability of finding a pumpkin with a circumference greater than 12 ft?