KFUPM Term 122 Date: 2/3/2013

Mathematics & Statistics STAT 319 Duration: 20 minutes

Quiz# 2

Name: ID #: Section 2 Serial #:

Q1. A large company has an inspection system for the batches of small compressors purchased from vendors. A batch typically contains ***fifteen*** compressors. A random sample of ***five*** is selected and all are tested. Suppose that ***one fifth*** of the purchased compressors are faulty:

a. What is the probability that there will be exactly ***two*** faulty compressors in the sample of ***five*** selected from the batch of ***fifteen***?

b. If the compressors are selected one by one, from ALL the compressors purchased, and tested every time, what is the probability that there will be ***at least two*** faulty compressors in the sample?

P.T.O. ➔

Q2. An automobile manufacturer is concerned about a fault in the braking mechanism of a particular model. The fault can on rare occasions cause a catastrophe at high speed. Assume the average number of cars per year that will experience the fault is six:

a. What is the probability that, in a given period of ***five*** months, at most two cars will experience a fault in the braking mechanism?

b. What is the average number of cars that will experience the fault in ***thirty*** months?

c. (bonus) What is the median and the third quartile of the number of cars that will experience the fault in ***five*** months?

With My Best Wishes