KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

DEPARTMENT OF MATHEMATICS & STATISTICS

DHAHRAN, SAUDI ARABIA

STAT 211: BUSINESS STATISTICS I

Semester 131
Major Exam Three
November 28, 2013
Allowed time 60 minutes

Please check/circle your instructor's name

MUHAMMAD RIAZ	Section 03 (9:00am – 9:50am)
MOHAMMED SALEH	Section 05 (11:00am – 11:50am)

Name: Student ID#: Serial #:

Directions:

1) You must **show all work** to obtain full credit for questions on this exam.
2) **DO NOT round** your answers at each step. Round answers only if necessary at **your final step to 4 decimal places**.
3) You are allowed to use electronic calculators and other reasonable writing accessories that help write the exam. Try to define events, formulate problem and solve.
4) Do not keep your mobile with you during the exam, turn off your mobile and leave it aside

Question No	Full Marks	Marks Obtained
Q1	*5*	
Q2	*8*	
Q3	*6*	
Q4	*6*	
Total	*25*	

Q1: The mileage in 1000s mils for which a certain type of tire will lest is a random variable with pdf

$$f(x) = \begin{cases} \frac{1}{20}\, e^{-\frac{x}{20}} & x > 0 \\ 0 & otherwise \end{cases}$$

1. Find the probability that the tire will last at most 10000 miles. (2pts)

2. Find the median life of the tire. (3pts)

Q2: the fill volume of an automated filling machine used for filling cans of carbonated beverage is normally distributed with a mean of 370 cc and standard deviation of 5 cc.

1. What is the probability that a fill volume is less than 360 cc? (2pts)

2. If all cans less than 358 or greater than 382 cc are scrapped, what proportion of cans is scrapped? (4pts)

3. If 28,454 of the cans are scrapped, what is the total number of cans? (2pts)

Q3: Business professionals found that 27% chose an airline based on price. If a sample of size 500 randomly selected

1. Approximate the probability that more than 125 of all business professionals chose an airline based on price. (3pts)

2. What is the probability that we would find a sample proportion of 30% or more? (3pts)

Q4: Frito – Lay is one of the world's largest makers of snack foods. One of final steps is making products like Cheetos and Doritos is to package the product in sacks or other containers. Suppose Frito – Lay managers set the fill volume on Cheetos to an average volume of 16 ounces. The filling machine is know to fill with standard deviation of 0.25 ounces with normal distribution around the mean fill level.

1. What is the probability that a single bag of Cheetos will have a fill volume that exceeds 16.1 ounces? (2pts)

2. What is the probability that a random sample of 12 bags of Cheetos will have a mean fill volume that exceeds 16.1 ounces? (4pts)