Prince Sultan University
STAT 271
Final Examination
Second Semester 2013/2014, Term 132
Tuesday, 27th May 2014
Dr. Mohammed Kaouache

First Name: _____

Last Name: _____

ID Number: _____

Question	Max points	Student's Points
1	16	
2	16	
3	8	
Total	40	

Time Allowed: 120 minutes

Important Instructions:

1. You may use CASIO scientific calculator that does not have programming or graphing capabilities.
2. You may NOT borrow a calculator from anyone.
3. Mobile phones, notes and notebooks are not allowed.
4. You must fully explain all of your answers.
5. You may use the back of the pages for extra space, but be sure to indicate which question you are answering.
6. This examination consists of **4** questions on **7** pages including this one.

Q1. (16 pts)

The percentages of on time arrivals for two regional airlines were surveyed with the following results.

	Airline A	Airline B
On time1	400	280
Not on time	300	200

To test the difference between the proportions on time at the level $\alpha = 0.05$, use:

(for both tests: state the null hypothesis, define the test statistic, find the test value, and make your decision based on the P-values or the critical values)

(a) (8 pts) A z-test

(b) (8 pts) A chi-square test

Q2. (16 pts)
The number of grams of carbohydrates contained in 1-ounce servings of randomly selected chocolate and nonchocolate candy is listed here.

Chocolate:	29	25	17	36	42	25
Nonchocolate:	41	41	37	29	30	

To test the difference in the means:

(for both tests: use $\alpha = 0.05$, state the null hypothesis, define the test statistic, find the test value, and make your decision based on the p-values or the critical values)

(a) (8 pts) Assume the data is normally distributed and perform a t-test.

b) (8 pts) Assume the data is not normally distributed and perform a Wilcoxon rank sum test

Q3. (8 pts + 3 bonus pts)
A researcher wishes to see whether there is any difference in the weight gains of athletes following one of three special diets. Athletes are randomly assigned to three groups and placed on the diet for 6 weeks. The weight gains (in pounds) are shown here.

Diet A	Diet B	Diet C
3	10	8
6	12	3
7	11	2
4	14	5
8		

To test the difference in the diets:

(for both tests: use $\alpha = 0.05$, state the null hypothesis, define the test statistic, find the test value, and make your decision based on the p-values or the critical values)

a) (8 pts) Assume the data is normally distributed and perform a ANOVA F-test.

b) (3 **bonus** pts) Assume the data is not normally distributed and perform a Kruskal-Wallis Test