Prince Sultan University
STAT 271
First Examination
First Semester 2012-2013, Term 121
Wednesday, October 3rd, 2012
Dr. Khaled Manasrah

Time Allowed: 90 minutes
Maximum points: 60 points
Name: _____ _____ _____ ID Number: _____
(First) (Middle) (Last)

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. You do NOT get special consideration if you forget your calculator.
4. Don't use notes or any notebook.
5. There should be NO talking during the examination.
6. Your exam will be taken immediately without any warning if your mobile is seen or heard.
7. Work in a neat and well-organized manner. Show your work on all problems. Please indicate your final answers clearly.
8. You may use the back of the pages for extra space, but be sure to indicate that on the page with the problem.
9. This examination has **8** problems, some with several parts. Make sure that your paper has all these problems.

Problem	Max Points	Points Earned
1	2	
2	2	
3	6	
4	6	
5	6	
6	6	
7	12	
8	20	
Total	60	

1) (2 pts) Find the $t_{\frac{\alpha}{2}}$ value for a 95% confidence interval when the sample size is 22.

2) (2 pts) Find the $z_{\frac{\alpha}{2}}$ value for a 80% confidence interval.

3) (6 pts) In a sample of 50 retired Saudi men, the average number of jobs they had during their lifetimes was 7.2. The population standard deviation is 2.1. Construct 90% confidence interval of the mean number of jobs.

4) (6 pts) A health care professional at Riyadh National Hospital wishes to estimate the birth weights of infants. How large a sample must be obtained if he desires to be 95% confidence that the mean is within 2 ounces of sample mean, assuming that that the population standard deviation is 8 ounces?

5) (6 pts) In a survey of 1002 Riyadh residence, 451 thought they were worse off financially than a year ago. Find 95% confidence interval for the true proportion of individuals who feel they are worse off financially.

6) (6 pts) Find the 90% confidence intervals for the variance of the ages of Prince Sultan University students if a sample of 30 students has a standard deviation of 2.3 years.

7) (12 pts) A test of the null hypothesis $H_\circ : \mu = 0$ gives test statistics $z = 1.8$.

   a) What is the P-value if the alternative is $H_a : \mu > 0$?

   b) What is the P-value if the alternative is $H_a : \mu < 0$?

   c) What is the P-value if the alternative is $H_a : \mu \neq 0$

8) (20 pts) The average local cell phone call length was reported to be 2.27 minutes. A random sample of 20 phone calls showed an average of 2.98 minutes in length with a standard deviation of 0.98 minute at $\alpha = 0.05$ can it be concluded that the average calls differs from the population average.

a) State both the null and the alternative hypotheses.

b) Find the critical value(s)

c) Compute the test value.

d) Make the decision.

e) Summarize the results.