KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS AND STATISTICS
Term 151

STAT 212 BUSINESS STATISTICS II
Allowed time 75 minutes
Wednesday September 16, 2015

Please circle your instructor name:

R. Anabosi M. Saleh

Name:_____ ID #:_____ Srl #:____
Important Note:

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**.

Question No	Full Marks	Marks Obtained
Q1	12	
Q2	10	
Q3	16	
Q4	12	
Total	50	

Question One:

From old records, it is believed that the average number of overtime hours for a company in Al - Dammam is more than 20 hours per month. A random sample of 25 employees was selected and the number of overtime hours for each was registered. The sample gave an average of 24.75 and a standard deviation of 5.226.

a. Construct the appropriate null and alternative hypotheses. (1 *point*)

b. What is the test statistic? (3 *points*)

c. Using a significance level equal to 0.025, do the data support the old records? Justify your answer. (4 *points*)

d. Referring to your answer in part (c), which of the two statistical errors might have made in this case? Explain. (2 *points*)

e. Do you need any assumptions? If yes, what? If no, why? (2 *points*)

Question Two:

Occupational Outlook Quarterly (winter 1995) reported that 100 young people, of age between 16 and 19 year, were found in a sample of size 220 selected from people working in the construction industry. The construction industry claims that at least 25% of the people working in the construction industry are of age 16 to 19 year.

a. Construct the appropriate null and alternative hypotheses. (1 *point*)

b. What is the test statistic? (3 *points*)

c. Find the observed level of significance of the test and interpret it. (2 *points*)

d. Do you think that the claim of the construction industry is justified? Explain? Using a significance level equal to 0.025. (2 *points*)

e. Referring to your answer in part (d), which of the two statistical errors might have made in this case? Explain. (2 *points*)

Question Three:

The Computer Anxiety Rating Scale (CARS) measures an individual's level of computer anxiety, on the scale from 20 (no anxiety) to 100 (highest level of anxiety). A researcher at Miami University administered CARS to 72 business students. One objective of the study was to determine whether there is a difference between the level of computer anxiety experienced by female students and male students. They found the following:

	Males	Females
Sample size	22	50
Sample mean	40.26	36.42
Sample standard deviation	13.35	9.42

a. At 5% level of significance, is there evidence of difference in the variability of the computer anxiety experienced by males and females? (8 *point*s)

b. At 5% level of significance, is there evidence of difference in mean computer anxiety for females and males students? (6 *points*)

c. Do you need any assumptions? If yes, what? If no, why? (2 *points*)

Question Four:

A computer manufacturer is considering one of two types of components in its home computers. Ninety components of type I are tested, and nine failed. One hundred components of type II are tested, and twenty two failed.

a. Test the hypothesis of no different between the two population proportions, using the p-value approach. (10 *points*)

b. Based on your answer in parts (a), which component they should use? Explain you answer. (2 *points*)