KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS AND STATISTICS
Term 162

STAT 212 BUSINESS STATISTICS II

First Major Exam

Wednesday March 8, 2017 6:00 PM

Name:_____ ID #:_____ Section #:_____ Srl #:____

Important Note:

1) You must **show all your 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
*Q*1	15	
*Q*2	11	
*Q*3	14	
*Q*4	16	
*Q*5	14	
Total	**70**	

Question One: (15 *points*)

The average 1-ounce chocolate chip cookie contains 110 calories. A random sample of 15 different brands of 1-ounce chocolate chip cookies resulted in the following calorie amounts. At the 0.05 level, is there sufficient evidence that the average calorie content is greater than 110 calories?

100	125	150	160	185	125	155	145
160	100	150	140	135	120	110	

Given: $\sum x = 2060$, $\sum x^2 = 291050$

Hypotheses (1)
Assumptions (2)
Test statistic (4)
Critical value (2)
Decision rule & Decision (2)
Conclusion (2)
What type of error you might have made? Explain. (2)

Question Two: (11 *points*)

A real estate agent believes that the average closing cost of purchasing a new home is $6500 over the purchase price. She selects 40 new home sales at random and finds that the average closing costs are $6600. The standard deviation of the population is $120.

Find the 95% confidence interval for the mean and use it to test her belief.

Hypotheses (2)
Assumptions (2)
Confidence interval (3)
Decision rule & Decision (2)
Conclusion (2)

Question Three: (14 *points*)

The average price of a sample of 12 bottles of diet salad dressing taken from different stores is \$1.43. The standard deviation is \$0.09. The average price of a sample of 16 low-calorie frozen desserts is \$1.03. The standard deviation is \$0.10.

At 1% level of significance, is there a significant evidence that the mean price of the Dressing is higher than the mean price of the Dessert?

Hypotheses (2)
Assumptions (3)
Test statistic (4)
Critical value (1)
Decision rule & Decision (2)
Conclusion (2)

Question Four: (16 *points*)

A dietitian read in a survey that at least 55% of adults do not eat breakfast at least 3 days a week. To verify this, she selected a random sample of 80 adults and asked them how many days a week they skipped breakfast. A total of 50% responded that they skipped breakfast at least 3 days a week. At a 0.10, test the claim using the *p*-value approach.

Hypotheses (2)
Assumptions (2)
Test statistic (3)
p-value (3)
Decision rule & Decision (2)
Conclusion (2)
What type of error you might have made? Explain. (2)

Question Five: (14 *points*)

In a sample of 80 workers from a factory in city A, it was found that 5% were unable to read, while in a sample of 50 workers in city B, 8% were unable to read.

Can it be concluded that the proportion of workers in city B is not less than the proportion of workers in city A? Use $\alpha = 0.10$.

Hypotheses (2)
Assumptions (2)
Test statistic (4)
Critical value (2)
Decision rule & Decision (2)
Conclusion (2)

With Our Best Wishes