BUS 310, Quiz #1, Fall 2018

Name KEY

Section _____

Instructions: This quiz is to be completed entirely in class. You may not use cell phones, and you may only access internet resources you are specifically directed to use. Go to Blackboard and open the data file posted under Quiz #1. Use it to answer the following questions. **Place your answers to the bolded questions directly on this page**. You must submit the Excel file you used to perform calculations into the Quiz #1 folder in Blackboard, and submit the paper version of the quiz to the instructor to be eligible to receive full credit.

1. *Hotnews Magazine* publishes a US and a Canadian edition each week. There are 30,000 subscribers in the US and 20,000 in Canada. Other copies are sold at newsstands. Postage and shipping costs average $80 per thousand copies for the United States and $60 per thousand for Canada. Surveys show that no more than 120,000 copies of each issue can be sold (including subscriptions) and that the number of copies of the Canadian edition should not exceed twice the number of copies of the US edition. If the profit is $200 for each thousand copies of the US edition and $150 for each thousand copies of the Canadian edition, formulate a solve a mathematical model for this situation to maximize profit using Solver and produce a sensitivity report. **State the objective function and the number of each edition to be produced, and state the maximum profit and the shadow price for the Total produced constraint.**

Correct

$0.20X + 0.15Y = \text{Profit} = 23{,}000$

U.S. $X = 100{,}000$

Can. $Y = 20{,}000$

Shadow price Total produced $= 0.20$

almost correct (neg. error only)

$0.20X + 0.15Y = 20{,}000$

U.S. $X = 40{,}000$

Can $Y = 80{,}000$

Shadow price Total prod. $0.17

2. Consider the students on sheet #2-3 as the sampling frame. Select a simple random sample of 15 shipments and use that sample to calculate the **mean GMAT score. Did any of your sample have a missing score and how did Excel treat these cases?**

answers will vary $\bar{X} = 670.1$

Excel treated them as blanks and skipped them in count

3. Consider the data set provided to be the sample. Calculate the proportion of the sample that are Marketing majors, and the proportion that are Finance majors. Use that information to **calculate a 95% confidence for both proportions. Does it suggest that there is a difference between the proportion of the population that major in Marketing vs. Finance? Explain.**

Marketing (23.16%, 26.96%)

Finance (18.29%, 21.81%)

Yes, there is a difference because the intervals do not overlap

Submit your completed Excel file to Blackboard, and submit your paper quiz to your instructor in class.