BUS 310, Exam #1, Part I, Summer 2019   Name _____

Instructions: This exam is in two parts: Part I is to be completed partly at home using the materials posted on Blackboard for Part I and you will answer questions about that work in class below; Part II 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.

Part I: At home, open the data file entitled **310exam1part1data.xlsx** posted in Blackboard. Complete the calculations noted below. You will be asked for additional analysis and interpretation of this data in the in-class portion of the test. Bring the file with you on a flash drive, or upload to Exam #1, Part I in Blackboard (this submission will not be graded: the file will need to be reuploaded to Blackboard as part of the completed exam; it's just for you to have access to your calculations during the test).

1. A furniture company manufactures tables and chairs. Each table and chair must be made entirely out of oak or entirely out of pine. A total of 15,000 board feet of oak and 21,000 board feet of pine are available. A table requires either 17 board feet of oak or 30 board feet of pine, and a chair requires either 5 board feet of oak or 13 board feet of pine. Each table can be sold for $800 and each chair for $300. Determine how the company can maximize revenue. Use Solver to solve the problem and confirm your results with a Desmos graph (include a screenshot in your analysis). Perform a sensitivity analysis and be prepared to explain the results.

The attached file includes data on 1995 MBA students.

2. Select a stratified sample by Undergrad Major (there are 5 categories). Select a sample of 5 students from each stratum. Find the mean and standard deviation of each stratum for age, and the overall mean and standard deviation.
3. Ages in the data file range from 25 to 42. Select a cluster sample by age (each age is a cluster), and randomly select three ages for the sample. Calculate the mean and standard deviation of the GMAT score for each cluster, and the overall mean and standard deviation of the overall sample. You will need to clean up the data first, by removing data that does not have a GMAT score before doing your analysis.
4. Separate the data for Monthly Expenses according to marital status. Construct a confidence interval for the difference of means between married and unmarried.