BUS 210, Exam #1A, Fall 2017

Name KEY

Section _____

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. You may access your data file for Part I of the exam in Blackboard. You may access the data files posted to Blackboard for the Exam part II. Be sure you are using the data file that matches the exam version you are given.

Part I:

1. Describe the histogram created from the data in the data file for Part I. Is the distribution symmetric, skewed right, skewed left or none of these?

The histogram is none of these

2. Describe the scatterplot you created of the percent-taking and combined scores. Does there appear to be a trend in the data? Can you explain why this trend might exist?

Yes, there does appear to be a trend in the data. As more students take the exam, the score goes down, suggesting only elite student take it in some States

3. Report the mean and standard deviation values below. Based on your answer in #1, does the Empirical Rule apply?

mean 37.18%
St. dev. 30.49%

no, does not apply since graph is not symmetric

4. Using the information you calculated on combined score, are there any outliers in the data? Use that information to sketch, by hand, a boxplot of the data below. It should be to scale. Be sure your sketch is appropriately labeled.

No outliers

Boxplot of Combined SAT Scores

Part 2:

5. Order the seven steps of the modeling process in the appropriate order. List the sequence in the column to the right.

Step	Order
Present the results to the organization.	6
Develop a model.	3
Implement model and update it over time.	7
Define the problem.	1
Verify the model.	4
Collect and summarize data.	2
Select one or more suitable decisions.	5

6. Classify the following variables:

Variable	Categorical	Quantitative	Discrete	Continuous	Nominal	Ordinal	Interval	Ratio
Test Grade (Letter Percent)	✓	✓		✓		✓		✓
Country	✓				✓			
Year		✓	✓				✓	
Volume		✓		✓				✓
Cost		✓		✓				✓
Produce	✓				✓			
Purpose	✓				✓			
Latitude		✓		✓			✓	
Rainfall		✓		✓				✓
Gender	✓				✓			
Political Party	✓				✓			

7. What does it mean if we say a value represents the 40th percentile?

40% of the data falls at or below that value

8. With symmetric or bell-shaped distributions, approximately what percent of the observations are within three standard deviations of the mean?

99.7%

9. Expressed in percentiles, what does the first quartile represent?

25th

10. In a generic box plot, what does the "x" or "+" represent inside the box?

mean

11. A screen capture of an Excel spreadsheet is shown below. We wish to calculate the simple interest paid in Column B over one year on the principle values shown in Column A. The formula for simple interest is $I = Pr$ for a single year. What would you need to type in Cell B2 to calculate the simple interest, so that you can copy the formula into cells B3 and B4 without having to update any cell references manually? Write the formula below.

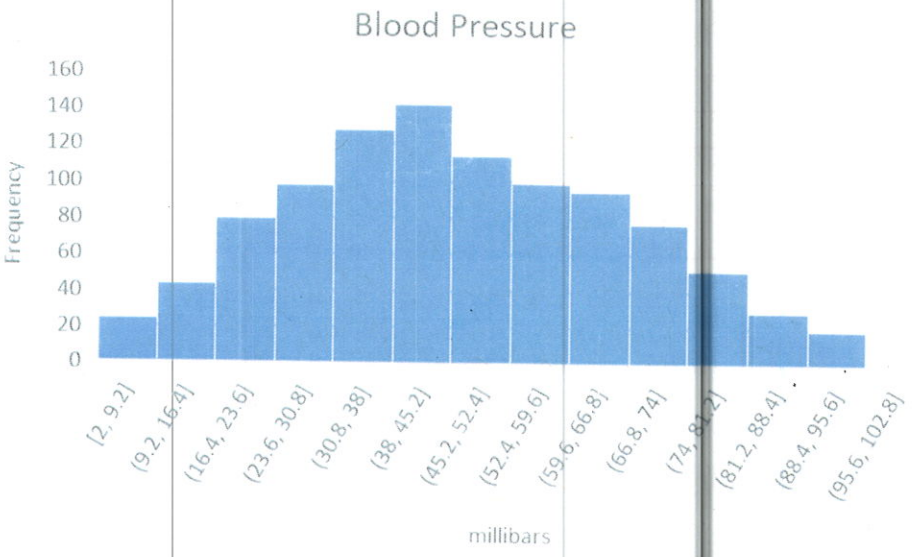
	A	B	C	D	E	F
1	Principle	Interest		Simple Interest Rate	6%	
2	45000					
3	8500					
4	11000					
5						

=A2*E$1

12. Create a Time Series graph of the data in the Exam 1 data file of the Standard & Poor's index values. Describe what you see. Are there any noticeable trends or events. Be thorough.

general upward trend
peaks around 2000, 2007 and 2014
sharp dips around 2003-4, 2009

13. Describe the shape of the distribution shown in the graph below.



roughly symmetric

14. In the data file for the exam, use the data set on the sheet #14 to answer the following questions using the Age data.

a. Find the mean.

44.83

b. Find the median.

45

c. Does the mean and median differ by much? What does this tell you about the likely shape of the distribution?

about the same, symmetric

d. Find the interquartile range of the data.

22

e. Find the 13th percentile.

30