A. True and False Questions.

____ A population is the collection of all measurements of interest in a given study.

____ A statistic is a function of all the measurements in a population.

____ A parameter, like µ, is constant that describes certain characteristic of a sample.

____ The median is sensitive to extreme values in one direction.

____ The mode is a measure of variability.

____ The range is a measure of relative standing.

____ The 60th percentile of a distribution is that value that exceeds 60 percent of the measurements and is exceeded by 40 percent of the measurements.

____ The standard deviation of a set of measurements is a measure of variability.

____ If the original units in a data set are (linear) inches, then the standard deviation of the set is expressed in square inches.

____ According to the "Empirical rule", which applies to bell-shaped distributions, at least 95 percent of the observations in a data set fall within two standard deviations of the mean.

____ According to the Chebyshev's rule, approximately 95% of the observations fall within two standard deviations of the mean.

____ "Political party affiliation" is an example of qualitative data.

____ "Nationality" of college students is an example of quantitative data.

____ "Age" of voters is an example of quantitative data.

____ "Religion affiliation" of FIU students is an example of ordinal data.

____ "Body temperature" of people, as measured in the Fahrenheit scale, is an example of interval data.

____ A stem and leaf display is a graphical method that can be used to describe quantitative data sets.
The third quartile of a population or distribution corresponds to the 30\textsuperscript{th} percentile of the distribution.

For a sample of moderate size, you may approximate the value of the standard deviation by dividing the sample range by 4.

B. Consider the following data set:

\begin{verbatim}
.0332  .0341  .0390  .0127  .0542  .0709  
.0552  .0420  .0282  .0662  .0149  .0530  
.0558  .0441  .0672  .0429  .0300  .0326  
.0511  .0230  .0421  .0683  .0475  .0534  
.0228  .0089  .0438  .0465  .0816  .0291  
\end{verbatim}

Construct a stem and leaf display

C. Consider the following data set:

\begin{verbatim}
3  8  9  3  4  7  8  3  3  2  7  5  6
\end{verbatim}

Compute the following statistics:

i) Arithmetic mean

ii) Median

iii) Range
iv) Variance

v) Standard deviation

D. The mean and standard deviation of the age of bank customers with large checking accounts are 44 and 6, respectively. What can you say about the proportion of such customers that

i) have ages between 35 and 53?

ii) have ages between 35 and 56?

iii) are 56 years old or older?

iv) are older than 35?
E. A newspaper publishing company wants to reduce the number of typographical errors made on its daily newspaper. The current mean and standard deviation of the number of typographical errors per edition are 180 and 30, respectively. Assume the distribution of the number of typographical errors is approximately bell-shaped. Determine the following:

i) The proportion of the time the number of typographical errors is at least 150.

ii) The probability that today's edition of the company's newspaper has less than 120 errors.

iii) The proportion of the time the number of errors is between 150 and 210.

F. Suppose 74.3 and 95.9 are two elements of a population data set and that their z-scores are .6 and 2.2, respectively. Determine the mean and the standard deviation of the population.
G. Refer to the data set in problem B. Find the quartiles and draw a box plot.

H. Refer again to the data set in problem B. Estimate the 10th, the 65th, and the 90th percentiles.