STA 2023   SAMPLE REVIEW – CHAPTERS 1-3 (not all-inclusive)

1. **True/False**

___ a) The Empirical Rule applies to mound-shaped data.
___ b) A sample is the complete set of observations or measurements of interest to an
    experimenter.
___ c) The stem-and-leaf display is a tool used to graph qualitative data
___ d) The union of two events, A and B, is the event containing all the sample points
    that are either in event A or event B or both events A and B.
___ e) In a skewed right distribution, the mean is greater than the median.

2. Use the sample below to find the following:

         6   8   0   4   -3   6

_____ mean   _____ standard deviation

_____ median   _____ range

_____ mode

3. Identify the following variables as Qualitative or Quantitative:

_____ The declared major of a college student

_____ The cost of a fast-food meal

_____ The favorite brand of soft-drink of a consumer

4. At one retail store, the mean time for a person to complete an application for
   employment is 24.5 minutes with standard deviation 3.9 minutes. What is the
   probability a randomly selected applicant takes longer than 37 minutes to fill
   out the application?

5. A group of faculty and students were surveyed regarding a campus issue; their opinions are recorded below. Use the following table to answer the following questions:

OPINION	In Favor	Opposed	No Opinion
Faculty	20	34	0
Students	93	70	23

_____a) What proportion of the responses were in opposition to the issue?

_____ b) What proportion of those opposed were faculty?

_____ c) What proportion of the responses were either from students or in favor of the issue?

_____ d) Are the events S(Student) and N(No opinion) mutually exclusive events? Thoroughly justify your answer.

_____ e) Are the events S(Student) and N(No opinion) independent events? Thoroughly justify your answer.

6. Suppose 60% of a group of American citizens is registered to vote and of those registered, 85% voted in the last Presidential Election. What is the probability a randomly selected citizen is both registered to vote and voted in the last Presidential Election?

KEY
(Brief answers; on the exam remember to show your work)
1. T, F, F, T, T
2. mean = 3.5, median = 5, mode = 6, st. dev. = 4.2, range = 11
3. Qual., Quan., Qual.
4. at most 11%
5. a) .43 b) .33 c) .86 d) No, $P(S \cap N) = .10 \neq 0$ e) No, $P(S) \neq P(S|N)$; .78 ≠ 1.00
6. .51