Journal Entries

Your responses may be handwritten neatly on these pages. Respond to each item, giving sufficient detail. *Your portfolio should be a collection of your best work and should also be very helpful to you as you prepare for exams.*

Unit I —

1.   Give a clear example for each of the following statistical terms.

qualitative variable _____

quantitative variable _____

continuous variable _____

discrete variable _____

measurement: _____ corresponding boundaries: _____ – _____

2.   Match the following statistics with the most appropriate definition/procedure.

_____ mean   (A) the middle value after a sort

_____ mode   (B) the maximum value minus the minimum value

_____ median   (C) the most commonly occurring value(s)

_____ range   (D) a measure of variability involving an average of
                                         the differences between each data value and the
_____ standard deviation   mean

                                     (E) the sum of the data values divided by the
                                         number of values

3.   List the 5 components of a box plot.

_____ , _____ , _____ , _____ , _____

How do you find the first quartile? _____

How do you find the third quartile? _____

How do you find the interquartile range? _____

4.   List the 4 most common sampling techniques (to avoid statistical bias).

_____ _____ _____ _____

5.   List the formulas for finding the z-score, the mean for grouped data, the midrange, the percentile rank of a value, and the value corresponding to a given percentile, along with a brief description of what the variables in the formulas mean.

z-score = _____

$\overline{X}$ = _____

MR = _____

Percentile = _____

Value corresponding to a given percentile = _____

       When c is whole, _____ ;

       When c isn't whole, _____ .

6.   Match the following statistical graphs with their definitions.

____ histogram

____ Pareto chart

____ time-series graph

____ stem-and-leaf plot

____ pie graph

(A) a chart with rectangular bars of lengths usually proportional to the magnitudes or frequencies of what they represent; used for comparing two or more values; the bars can be horizontally or vertically oriented; sometimes a stretched graphic is used instead of a bar: often the categories are ranked from largest to smallest, and this graph is used exclusively for categorical or qualitative variables

(B) a circular chart divided into sectors or wedges according to the percentage of frequencies in each category of the distribution; the arc length of each sector (and consequently its central angle and area), is proportional to the quantity it represents

(C) a graphical display of quantitative data that is similar to a histogram in shape; unlike other graphs, it displays the original (at least the most important digits), and it displays the data in order; larger place values are used for the stem, and smaller place values are used for the leaf

(D) a graph that typically shows the variable of interest on the vertical axis and a time variable on the horizontal axis; this graph best shows trends over time

(E) a graph that displays the data by using vertical bars of various heights to represent the frequencies of a distribution; the categories (bars) must be adjacent; this graph always involves continuous variables, and either midpoints or boundaries are used on the horizontal axis

7.   Write the formulas for finding the standard deviation for sample and population data.

        s = _____ σ = _____

8.   Complete the following steps toward making a histogram "by hand".

        (1) First calculate the _____ using the maximum and minimum values.

        (2) Divide the range by the number of classes you choose to find the _____.
            Use an approximate value, and an odd number is best.

        (3) Use _____ or _____ for the horizontal axis.

        (4) Draw bars to the corresponding frequencies. The histogram is the graph which is used
            for _____ (discrete or continuous) variables and best shows
            _____ of the various groups, much like the bar graph and circle graph
            or pie graph.

9.   Write a few sentences describing your favorite activity in class this unit.

10.   Include <u>self-assessment</u> of your effort in this course for this unit (including time spent on
        homework, time spent in the AAC, office hour help, etc.). Assess yourself on your level
        of <u>understanding</u>.

        Also provide <u>feedback</u> on how you feel the course/instruction/textbook could be
        improved in this unit.