Write your name on the appropriate line on the exam cover sheet. This exam contains 7 pages (including this cover page) and 8 questions. Check that you have every page of the exam. Answer the questions in the spaces provided on the question sheets. Be sure to answer every part of each question and show all your work. If you run out of room for an answer, continue on the back of the page — being sure to indicate the problem number.

Question	Points	Score
1	12	
2	8	
3	12	
4	8	
5	5	
6	25	
7	20	
8	10	
Total:	100	

1. (12 points) In the blanks provided, indicate whether the underlined measurement represents a quantitative or categorical variable.

   (a) _____ : The Twitch streamer Flip_Switch has an average of <u>eighty-nine</u> viewers every night. Go Flip!

   (b) _____ : The average course grade was a <u>44</u> . . .

   (c) _____ : My friend is not a fan of <u>horror movies</u>.

   (d) _____ : I only have <u>$5</u> to my name.

   (e) _____ : My zip code is <u>90210</u>.

   (f) _____ : After college, I will move to <u>NYC</u> and become a professional leprechaun spotter.

2. (8 points) In the blanks provided, indicate whether the underlined measurement represents a discrete or continuous variable.

   (a) _____ : But I would walk <u>500 miles</u>. DA DA DA!

   (b) _____ : I must have eaten <u>18</u> King Sized Reese's Fast Break bars today. My life is out of control.

   (c) _____ : My curly fry is <u>two inches</u> long. That's not enough curl and not enough fry.

   (d) _____ : The <u>temperature on the digital thermometer</u> says my temperature is 101.7°. I guess I'm pretty hot.

3. (12 points) Indicate in the spaces provided whether the described experiment represents a convenience, systematic, stratified, cluster, or random sample.

   (a) _____ : You ask your friends whether you're pretty.

   (b) _____ : To gauge SU student opinions on Otto the Orange, the university selects 30 course instructors to hand out surveys to all their students.

   (c) _____ : You ask every third and eighth person in a directory their opinion on Tom Holland.

   (d) _____ : A computer system selects a sample from a population using a special algorithm.

   (e) _____ : To gauge SU student opinions on Otto the Orange, the university selects ten people from each major and asks them to fill out a survey.

   (f) _____ : A news channel polls visitors to their website on their political views.

4. (8 points) In the blanks provided, indicate whether the underlined measurement represents a nominal, ordinal, interval, or ratio level measurement.

   (a) _____ : It's <u>287.04 Kelvin</u> outside right now.

   (b) _____ : It's <u>57°F</u> outside right now.

   (c) _____ : It's the <u>second hottest</u> day this week.

   (d) _____ : It's <u>hot as heck</u> out right now.

5. (5 points) Draw a stem-and-leaf plot for the following dataset:

   1.1,   1.1,   1.8,   1.9,   2.4,   2.6,   2.7,   3.3,   3.4,   3.5,   4.4,   7.1,   8.0,   9.9

   Is the dataset symmetric, left skewed, or right skewed?

6. (25 points) Consider the following stem-and-leaf plot constructed from a dataset consisting of 30 numbers:

$$
\begin{array}{c||l}
0 & 6 \\
1 & 257 \\
2 & 033455667889 \\
3 & 0002689 \\
4 & 22455 \\
5 & 12 \\
\end{array}
$$

Stem Unit: 10

(a) What are the midrange and range for this dataset?

(b) What percentile is the number 24 for this dataset?

(c) Give the 5-number summary for this dataset. Show your work.

(d) Sketch a boxplot for the dataset.

7. (20 points) Consider the dataset below:

$$1.1, \quad 2.3, \quad 3.7, \quad 4.0, \quad 5.7$$

(a) What is the mean of this dataset?

(b) Compute the variance of this dataset. You must show your work for this computation.

(c) Compute the standard deviation of this dataset. [You need not show your work.]

8. (10 points) Because a census to determine the population in a large city would be expensive, the mayor hires mathematicians to perform a statistical analysis to estimate the population of the city. The mathematicians estimate that the population of the city normally distributed with parameters $\mu = 2.3$ million and $\sigma = 0.6$ million. What is the percent chance that the population of the city is greater than 1.7 million people?