1. Construct an ogive that represents the following personality questionnaire data.

<table>
<thead>
<tr>
<th>Personality Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
</tr>
<tr>
<td>4 – 7</td>
</tr>
<tr>
<td>8 – 11</td>
</tr>
<tr>
<td>12 – 15</td>
</tr>
<tr>
<td>16 – 19</td>
</tr>
<tr>
<td>20 – 23</td>
</tr>
</tbody>
</table>

**Step 1.** Determine the lower class boundary for the second class.

**Step 2.** Determine the upper class boundary for the fifth class.

**Step 3.** Determine the missing value indicated by $y$ on the $y$ – axis of the graph given below step 5.

**Step 4.** Determine the missing value indicated by $x$ on the $x$ – axis of the graph given below step 5.

**Step 5.** Determine the correct position of each point for each of the classes on the given graph.

2. Lengths of time it takes for new light bulbs to burn out are an example of which type of data?

   **Answer:**
   
   A) Discrete
   
   B) Continuous
   
   C) Neither
3. Construct a pie chart that represents the following data concerning the reasons for an increase in traffic.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in trip lengths</td>
<td>4%</td>
</tr>
<tr>
<td>Increase in population</td>
<td>39%</td>
</tr>
<tr>
<td>Less carpooling</td>
<td>14%</td>
</tr>
<tr>
<td>Increase in trips taken</td>
<td>26%</td>
</tr>
<tr>
<td>Other</td>
<td>17%</td>
</tr>
</tbody>
</table>

**Step 1.** Determine the central angle for increase in trip lengths.

**Step 2.** Determine the central angle for increase in population.

**Step 3.** Determine the central angle for less carpooling.

**Step 4.** Determine the central angle for increase in trips taken.

**Step 5.** Determine the central angle for other.

4. Survey responses to the question "In which of the following regions of the country do you live?"
   1) East    2) North    3) South    4) West

   Please indicate if the given data are a. qualitative or quantitative, b. discrete or continuous. c. Also indicate the highest level of measurement associated with the given data.

a. A) Qualitative    B) Quantitative

b. A) Discrete       B) Continuous    C) Neither

c. A) Nominal        B) Ordinal        C) Interval    D) Ratio

5. A referee flips a coin to decide which team starts with the ball.

Identify the sampling technique used for the study above.

Answer: A) Census    B) Random Sampling    C) Stratified Sampling
         D) Cluster Sampling    E) Systematic Sampling    F) Convenience Sampling
6. Results sometimes produce flawed conclusions which can be a form of _______.

Fill in the blank with the most appropriate word.

Answer: A) Informed Consent  B) Participation Bias  C) Bias  
            D) Non-Sampling Error(s)  E) Researcher Bias  F) Processing Error(s)  
            G) Sampling Error(s)  H) Non-Adhere(s)  I) Dropout  
            J) Confounding Variable(s)

7. Consider the following frequency table representing the distribution of hourly wages for first jobs of a certain population.

<table>
<thead>
<tr>
<th>Hourly Wage at First Job</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.9 – 6.5</td>
<td>5</td>
</tr>
<tr>
<td>6.6 – 7.2</td>
<td>14</td>
</tr>
<tr>
<td>7.3 – 7.9</td>
<td>6</td>
</tr>
<tr>
<td>8.0 – 8.6</td>
<td>8</td>
</tr>
<tr>
<td>8.7 – 9.3</td>
<td>5</td>
</tr>
</tbody>
</table>

Step 1. Determine the midpoint for the fourth class.

Step 2. Determine the midpoint for the second class.

8. For tax purposes, a college president needs to know the average salary of instructors at their college.

Identify the sampling technique used for the study above.

Answer: A) Census  B) Random Sampling  C) Stratified Sampling  
            D) Cluster Sampling  E) Systematic Sampling  F) Convenience Sampling

9. Consider the following frequency table representing the distribution of hours students study for an exam in a week.

<table>
<thead>
<tr>
<th>Hours Students Study for an Exam in a Week</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 – 19</td>
<td>3</td>
</tr>
<tr>
<td>20 – 28</td>
<td>10</td>
</tr>
<tr>
<td>29 – 37</td>
<td>4</td>
</tr>
<tr>
<td>38 – 46</td>
<td>11</td>
</tr>
<tr>
<td>47 – 55</td>
<td>14</td>
</tr>
</tbody>
</table>

Step 1. Determine the cumulative frequency for the fourth class.

Step 2. Determine the cumulative frequency for the second class.
10. Consider the bar graphs, which show the numbers and percentages of bachelor's degrees in engineering and engineering technologies earned by women at U.S. schools. How many men earned bachelor's degrees in engineering and engineering technologies in 1975-76? Please round your answer to the nearest integer.
11. The following Stem and Leaf Plot represents the distribution of weights of a group of people.

```
   Stem | Leaf
      10 | 2 4 5 7
      11 | 1 1 2 3 5 6 9
      12 | 2 6 8
      13 | 1 1 3 6
      14 | 0 0 3 8
      15 | 1 2 3 3 7
      16 | 1 2 3 5 6
      17 | 3 4 6 7
      18 | 5 7 7
```

**Step 1.** What is the weight of the lightest person?

**Step 2.** How many people weigh in the range from 120 to 150?

**Step 3.** What is the weight of the heaviest person in the range 160 to 169?

12. Determine whether the statement describes a population or a sample.

The heights of 7 out of the 33 corn plants at Mr. Lonardo’s greenhouse.

Answer: A) Population   B) Sample

13. Consider the following graph:

**Step 1.** Classify the distribution as one of the following:

Answer: A) Uniform   B) Symmetrical   C) Skewed to the right   D) Skewed to the left

**Step 2.** Classify the distribution as one of the following:

Answer: A) Cross-sectional study   B) Time-series study
14. A(n) ______ is a participant who does not follow the instructions for a study.

Fill in the blank with the most appropriate word.

Answer:  

A) Informed Consent  
B) Participation Bias  
C) Bias  
D) Non-Sampling Error(s)  
E) Researcher Bias  
F) Processing Error(s)  
G) Sampling Error(s)  
H) Non-Adhere(s)  
I) Dropout  
J) Confounding Variable(s)

15. The following graph represents the income of a small business over the past 6 months.

Which of the following statements about the graph is true?

A) The $y$ – scale is too large for the given data.

B) The $y$ – scale is too small for the given data.

C) The $y$ – scale is appropriate for the given data.

16. Determine if the numerical value describes a population parameter or a sample statistic.

The average price of a car at the new car dealership in town is $33,800.

Answer:  

A) Population Parameter  
B) Sample Statistic