Take this quiz as you would take a quiz in class. After you are done, check your work against the answers given in the back of the book.

1. Identify the population and the sample in the following study.

   A study of 372 patients with anxiety disorders was conducted to find a link between coffee drinking and anxiety disorders.

2. Determine whether the numerical value is a parameter or a statistic.

   (a) In a survey of 798 Internet users, 19% said they have a wireless network in their home. *(Source: Pew Internet and American Life Project)*

   (b) In a vote, 84% of the employees at a company voted for new vending machines in the building.

   (c) A survey of about 1000 Americans shows that only 40% have an emergency savings account. *(Source: Consumer Federation of America)*

3. Determine whether the data are qualitative or quantitative.

   (a) A list of post office box numbers

   (b) The final exam scores in a chemistry class

4. Identify each data set's level of measurement. Explain your reasoning.

   (a) A list of badge numbers of police officers at a precinct

   (b) The number of candles sold by a candle manufacturer each quarter for the current fiscal year

   (c) The years of birth for the runners in the Boston marathon

5. Decide which method of data collection you would use to gather data for each study. Explain your reasoning.

   (a) A study on the effect of low dietary intake of vitamin C and iron on lead levels in adults

   (b) The ages of people living within 500 miles of your home

6. An experiment is being performed to test the effects of a new drug on high blood pressure. The experimenter identifies 320 people ages 35–50 years old with high blood pressure to participate in the experiment. The subjects are divided into equal groups according to age. Within each group, subjects are then randomly selected to be in either the treatment group or the control group. What type of experimental design is being used for this experiment?

7. Identify which sampling technique was used in each study. Explain your reasoning.

   (a) A journalist goes to a campground to ask people how they feel about air pollution.

   (b) For quality assurance, every tenth machine part is selected from an assembly line and measured for accuracy.

   (c) A study on attitudes about smoking is conducted at a college. The students are divided by class (freshman, sophomore, junior, and senior). Then a random sample is selected from each class and interviewed.

8. Which sampling technique used in Exercise 7 could lead to a biased study?

1. Population: Collection of all individuals with anxiety disorders

   Sample: Collection of 372 patients in study

2. (a) Statistic   (b) Parameter   (c) Statistic

3. (a) Qualitative   (b) Quantitative

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4. (a) Nominal, because no mathematical computations can be made.

   (b) Ratio, because one data value can be expressed as a multiple of another.

   (c) Interval, because meaningful differences between entries can be calculated but a zero entry is not an inherent zero.

5. (a) Perform an experiment because you want to measure the effect of a treatment on lead levels in adults.

   (b) Use a survey because it would be impossible to question everyone in the population.

6. Randomized Block Design

7. (a) Convenience sampling, because all of the people sampled are in one convenient location.

   (b) Systematic sampling, because every tenth machine is sampled.

   (c) Stratified sampling, because the population is first stratified and then a sample is collected from each stratum.

8. Convenience