**Vocabulary (Matching)**

Bias, Convenience Sample, Margin of Error, Non-response Error, Non-sampling Error, Population, Parameter, Probability sample, Processing Error, Question-wording Bias, Random Sampling Error, Response Error, Sample, Statistic, Simple Random Sample (SRS), Stratified sample, Sampling Frame, Undercoverage, Voluntary Response, Variability

**Multiple Choice/Short Answer Type Questions**

1. A talk radio show host asked the following question: “Should drivers be banned from using cell phones?” Listeners were encouraged to go online and vote. What type of sampling method is used?
2. A student did a survey on how much sleep high school students need. To make collection easy, she surveyed the first 100 students to arrive at school on a particular morning.
   1. What type of sampling method is used?
   2. Is the sampling method biased? Why?
3. Do adults typically wash their hands after using a public restroom? In a telephone survey of 1000 U.S. adults, 92% said they always wash their hand.
   1. What type of sampling method is used?
   2. Is this sampling method biased? Why (what type of errors could occur)?
4. A school newspaper is conducting a survey to find out students favorite fast food restaurant. Students are divided by age group: Age 14-15, 16-17, 18 and older. The school newspaper randomly chooses students at lunch and ask them their favorite fast food restaurant.
   1. What type of sampling method is used?
   2. Is it biased?
5. A school newspaper also wants to know how many years of post-graduate study do teachers have. They number the teachers in the school from 1 to 85 and then use a random number digit table to determine the first teacher selected. Then, the newspaper chooses every 10th teacher. On the day they did the survey, the entire fine arts department was absent due to a field trip.
   1. What type of sampling method is used?
   2. Is it biased?
6. The actual proportion of American who have bought a lottery ticket is about 47%. A Gallup Poll of 1,600 adults shows that 57% of Americans have bought a lottery ticket in the last 12 months. Find the following:
   1. Population b. Parameter c. Sample d. Statistic
7. A national sample survey interviewed 4,000 people age 18-25 by telephone. One question asked was whether they agreed on this statement: “Some people say we should have a third major political party in this country in addition to Democrats and Republicans.” Of the people asked, 53% agreed that we should have a third party.
   1. Population b. Parameter c. Sample d. Statistic

What is the margin of error for this scenario? What happens to the margin of error if we increase the sample size to 6,000? What if we decrease it to 1,000?

What is the 95% confidence interval for this scenario?

Make a confidence statement about the scenario?

1. A table of random digits was used to select 22 students out of a class of 38. The 22 students represent the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the 38 students represent the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. A student at a large university wants to study the responses that students receive when calling an academic department for information. She wants to select an SRS of 6 departments from the following list for her study.

Agronomy Art and Design Audiology Biochemistry Biology Chemistry Communication Computer Science

Consumer Science Education Electrical English

Foreign Languages History Horticulture Industrial Eng Managemnt Mathematics Nursing Pharmacology Philosophy Physics Political Science Psychology Sociology Statistics Veterinary Anatomy

27816 78416 18329 21337 35213 37741 04312 68508

08421 44753 77377 28744 75592 08563 79140 92454

Use the partial table of random digits above to select an SRS of 6 departments. Circle your answers.

1. The school wants to know student feeling about the food in the cafeteria that is served daily. A representative stands in the cafeteria and randomly selects 40 students during A lunch to answer a short survey. What type of sampling method is used? What is the sample for this scenario? What is the population?
2. What if we took the above scenario and asked 10 people from each lunch period (A, B, C, and D). Does that change the sampling method? Do students have an equal chance of being chosen?
3. A national sample survey interviewed 3,800 people age 18 and older nationwide by telephone. One question asked was whether they agreed on this statement: “Some people say we should have a third major political party in this country in addition to Democrats and Republicans.” Of the people asked, 53% agreed that we should have a third party.
4. Identify the following:

Population: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parameter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sample: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Statistic: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Find the margin of error for this scenario.
2. What is the 95% confidence interval for this scenario.
3. Make a confidence statement about the percent of all those age 18 or older in the nation who would believe we should have a third major political party.