Chapter 3: Surveys and Sampling – Quiz A
***Name*_____**

1. The administration of a large university is interested in learning about the types of wellness programs that would interest its employees. To do this, they plan to survey a random sample of employees. Under consideration are several plans for selecting the sample. Name the sampling strategy for each.

a. There are five categories of employees (administration, faculty, professional staff, clerical and maintenance). Randomly select ten individuals from each category.
b. Each employee has an ID number. Randomly select 50 numbers.
c. Randomly select a school within the university (e.g., Business School) and survey all of the individuals (administration, faculty, professional staff, clerical and maintenance) who work in that school.
d. The HR Department has an alphabetized list of newly hired employees (hired within the last five years). After starting the process by randomly selecting an employee from the list, then every 5^{th} name is chosen to be included in the sample.

2. Suppose the administration decides to do the following. At a Starbucks located on campus, every tenth person who enters on a Monday morning is selected to be surveyed. Explain why this may be biased.

3. Two of the questions asked in the survey of employees are shown below.

- *Since exercise is so important to good health, would you be willing to participate in organized walks during lunch hour?*

- *Would you attend a "low fat cooking" demonstration?*

a. Are these questions valid (appropriately worded)? Explain.
b. Which question is more neutral? Explain.

4. A consumer research group is interested in how older drivers view hybrid cars. Specifically, they wish to assess the percentage of drivers in the U.S. 50 years of age or older who intend to purchase a hybrid in the next two years. They used a list of AARP (American Association of Retired Persons) members as the sampling frame. Based on a systematic sample, they estimated the percentage to be 17%.

a. Define the target population.
b. Define the parameter.
c. What is the statistic?
d. How might the results be biased?

Surveys and Sampling – Quiz A – Key

1. The administration of a large university is interested in learning about the types of wellness programs that would interest its employees. To do this, they plan to survey a random sample of employees. Under consideration are several plans for selecting the sample. Name the sampling strategy for each.
a. There are five categories of employees (administration, faculty, professional staff, clerical and maintenance). Randomly select ten individuals from each category.

Stratified.

b. Each employee has an ID number. Randomly select 50 numbers.

Simple Random Sample.

c. Randomly select a school within the university (e.g., Business School) and survey all of the individuals (administration, faculty, professional staff, clerical and maintenance) who work in that school.

Cluster.

d. The HR Department has an alphabetized list of newly hired employees (hired within the last five years). After starting the process by randomly selecting an employee from the list, then every 5^{th} name is chosen to be included in the sample.

Systematic.

2. Suppose the administration decides to do the following. At a Starbucks located on campus, every tenth person who enters on a Monday morning is selected to be surveyed. Explain why this may be biased.

Depending on the time during which individuals are surveyed, undercoverage may be an issue. For example, different categories of employees have different levels of flexibility (clerical and maintenance workers don't have as much flexibility in their work days as do administration, faculty and professional staff). In addition, persons other than employees would presumably enter Starbucks, although a screening question can be used to make sure those interviewed are employees.

3. Two of the questions asked in the survey of employees are shown below.
   - *Since exercise is so important to good health, would you be willing to participate in organized walks during lunch hour?*
   - *Would you attend a "low fat cooking" demonstration?*

   a. Are these questions valid (appropriately worded)? Explain.

The first question is "leading" the respondent to answer yes.

b. Which question is more neutral? Explain.

The second question is more neutral because it does not lead to a yes response.

4. A consumer research group is interested in how older drivers view hybrid cars. Specifically, they wish to assess the percentage of drivers in the U.S. 50 years of age or older who intend to purchase a hybrid in the next two years. They used a list of AARP (American Association of Retired Persons) members as the sampling frame. Based on a systematic sample, they estimated the percentage to be 17%.

a. Define the target population.

All U.S. drivers 50 or older.

b. Define the parameter.

% who intend to purchase a hybrid in the next two years.

c. What is the statistic?

17% based on the sample.

d. How might the results be biased?

The sampling frame does not include all U.S. drivers 50 or older (not everyone 50 or older is a member of AARP).

Chapter 3: Surveys and Sampling – Quiz B Name_____

1. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management suspects that its regular customers have concerns regarding the security of online transactions. To determine if this is the case, they plan to survey a random sample of their regular customers. Under consideration are several plans for selecting the sample. Name the sampling strategy for each.

a. Regular customers belong to a rewards program and have a customer rewards ID number. Randomly select 100 numbers.
b. ASW has stores in five different cities in the northeastern U.S. Randomly select one of the stores and survey all regular customers that belong to its rewards program.
c. ASW has an alphabetized list of regular customers who belong to their rewards program. After randomly selecting a customer on the list, every 25^{th} customer from that point on is chosen to be in the sample.
d. Customers are grouped into four age categories (under 21, 21 to 35, 36 to 50, and over 50). Randomly select 10 regular customers in each age category.

2. In the ASW study described above,

a. Define the target population.
b. Define the parameter.
c. What is the sampling frame?
d. How might the results be biased?

3. One member of the management team at ASW suggests that their survey could be conducted online. Customers logging on to the online store would be asked to take a few minutes to complete the survey and would be offered a coupon as incentive to participate. Explain how this approach might be biased.

4. Two of the questions asked in the survey of customers are shown below.

- *Given the prevalence of identity theft, are you reluctant to provide credit card information online?*

- *Are you confident that any information you provide online is secure?*

a. Are these questions valid (appropriately worded)? Explain.
b. Which question is more neutral? Explain.

Chapter 3: Surveys and Sampling – Quiz B – Key

1. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management suspects that its regular customers have concerns regarding the security of online transactions. To determine if this is the case, they plan to survey a random sample of their regular customers. Under consideration are several plans for selecting the sample. Name the sampling strategy for each.

d. Regular customers belong to a rewards program and have a customer rewards ID number. Randomly select 100 numbers.

Simple Random Sample.

b. ASW has stores in five different cities in the northeastern U.S. Randomly select one of the stores and survey all regular customers that belong to its rewards program.

Cluster.

c. ASW has an alphabetized list of regular customers who belong to their rewards program. After randomly selecting a customer on the list, every 25^{th} customer from that point on is chosen to be in the sample.

Systematic.

d. Customers are grouped into four age categories (under 21, 21 to 35, 36 to 50, and over 50). Randomly select 10 regular customers in each age category.

Stratified.

2. In the ASW study described above,

a. Define the target population.

All regular ASW customers.

b. Define the parameter.

% of regular ASW customers who have concerns about online security.

c. What is the sampling frame?

ASW customers who belong to the rewards program.

d. How might the results be biased?

Not all regular customers belong to the rewards program and ASW should also consider how others (potential customers) feel.

3. One member of the management team at ASW suggests that their survey could be conducted online. Customers logging on to the online store would be asked to take a few minutes to complete the survey and would be offered a coupon as incentive to participate. Explain how this approach might be biased.

This is a voluntary response sample. This sample consists of customers already visiting the online store; the bias would probably be toward not having concerns about online security.

4. Two of the questions asked in the survey of customers are shown below.

- *Given the prevalence of identity theft, are you reluctant to provide credit card information online?*
- *Are you confident that any information you provide online is secure?*

a. Are these questions valid (appropriately worded)? Explain.

The first question is leading by mentioning the prevalence of identity theft.

b. Which question is more neutral? Explain.

The second question is more neutral because it does not lead the customer to a specific response.

Chapter 3: Surveys and Sampling Multiple Choice Quiz – Quiz C
***Name*_____**

3.1. Identify the three ideas of sampling.
1. The three ideas of sampling do not include

A. Sample size matters
B. Examine a part of the whole
C. The fraction of the larger population determines the precision of the resulting statistics
D. Randomization

3.2 and 3.3. Analyze the sampling method.
2. The administration of a large university is interested in learning about the types of wellness programs that would interest its employees. Suppose that there are five categories of employees (administration, faculty, professional staff, clerical and maintenance) and the university decides to randomly select ten individuals from each category. This sampling plan is called

A. Simple Random Sampling
B. Stratified Sampling
C. Cluster Sampling
D. Systematic Sampling
E. Convenience Sampling

3.2 and 3.3. Analyze the sampling method.
3. The administration of a large university is interested in learning about the types of wellness programs that would interest its employees. Suppose that the university randomly selects a school (e.g., the Business School) and surveys all of the individuals (administration, faculty, professional staff, clerical and maintenance) who work in that school. This sampling plan is called

A. Simple Random Sampling
B. Stratified Sampling
C. Cluster Sampling
D. Systematic Sampling
E. Convenience Sampling

3.2 and 3.3. Analyze the sampling method.
4. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. Suppose that ASW's regular customers belong to a rewards program and have a customer rewards ID number. ASW decides to randomly select 100 numbers. This sampling plan is called

A. Simple Random Sampling
B. Stratified Sampling
C. Cluster Sampling
D. Systematic Sampling
E. Convenience Sampling

3.2 and 3.3. Analyze the sampling method.
5. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. Suppose that ASW has an alphabetized list of regular customers who belong to their rewards program. After randomly selecting a customer on the list, every 25th customer from that point on is chosen to be in the sample. This sampling plan is called

A. Simple Random Sampling
B. Stratified Sampling
C. Cluster Sampling
D. Systematic Sampling
E. Convenience Sampling

3.2. Identify population, sample, sampling frame, and parameter.
6. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. All regular ASW customers is known as the _____ of the study.

A. parameter
B. statistic
C. target population
D. sampling frame
E. sample

3.2. Identify population, sample, sampling frame, and parameter.
7. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. Which of the following is the parameter of interest in the ASW study?

A. all regular ASW customers
B. % of regular ASW customers who have concerns about online security
C. ASW customers who belong to the rewards program
D. % of ASW customers who belong to the rewards program that don't shop online
E. none of the above

3.4. Identify bias.

8. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. One member of the management team at ASW suggests that their survey could be conducted online. Customers logging on to the online store would be asked to take a few minutes to complete the survey and would be offered a coupon as incentive to participate. Which of the following statements is true?

A. This is a voluntary response sample.
B. This would result in an unbiased random sample.
C. This would result in a biased sample.
D. Both A and B
E. Both A and C

3.4. Identify population, sample, sampling frame, and parameter.

9. A consumer research group is interested in how older drivers view hybrid cars. Specifically, they wish to assess the percentage of drivers in the U.S. 50 years of age or older who intend to purchase a hybrid in the next two years. They selected a systematic sample from a list of AARP (American Association of Retired Persons) members. Based on this sample, they estimated the percentage to be 17%. The sampling frame for this study is

A. all drivers in the U.S. 50 years of age or older
B. 17%
C. the list of AARP members
D. how older drivers view hybrid cars
E. none of the above

3.2. Identify population, sample, sampling frame, and parameter.

10. A consumer research group is interested in how older drivers view hybrid cars. Specifically, they wish to assess the percentage of drivers in the U.S. 50 years of age or older who intend to purchase a hybrid in the next two years. They selected a systematic sample from a list of AARP (American Association of Retired Persons) members. Based on this sample, they estimated the percentage to be 17%. Which of the following statements about this study is true?

A. 17% of all U.S. drivers 50 years of age or older intend to purchase a hybrid in the next two years.
B. 17% is a parameter.
C. 17% is a statistic.
D. Both A and B
E. Both A and C

3.4. Identify bias.

11. Which of the following survey questions is leading?

A. Given the prevalence of identity theft, are you reluctant to provide credit card information online?
B. Are you confident that any information you provide online is secure?
C. Are you concerned about the security of online transactions?
D. Both A and B
E. Both B and C

Chapter 3: Surveys and Sampling – Quiz C – Key

1. C
2. B
3. C
4. A
5. D
6. C
7. B
8. E
9. C
10. C
11. A

Chapter 3: Surveys and Sampling Multiple Choice Quiz – Quiz D
***Name*_____**

3.2 and 3.3. Analyze the sampling method.
1. Management at a large multinational corporation would like to survey its employees about the level of interest in combining flexible work schedules with telecommuting from home. Each employee has an ID number, and the administration plans to randomly select 250 numbers. This sampling plan is called

A. Simple Random Sampling
B. Stratified Sampling
C. Cluster Sampling
D. Systematic Sampling
E. Convenience Sampling

3.2 and 3.3. Analyze the sampling method.
2. Management at a large multinational corporation would like to survey its employees about the level of interest in combining flexible work schedules with telecommuting from home. The HR Department has an alphabetized list of newly hired employees (hired within the last year). After starting the process by randomly selecting an employee from the list, then every 5^{th} name is chosen to be included in the sample. This sampling plan is called

A. Simple Random Sampling
B. Stratified Sampling
C. Cluster Sampling
D. Systematic Sampling
E. Convenience Sampling

3.2. Identify population, sample, sampling frame, and parameter.
3. Management at a large multinational corporation would like to survey its employees about the level of interest in combining flexible work schedules with telecommuting from home. Which of the following is the parameter of interest in this study?

A. All employees at the corporation.
B. Percentage of employees who are interested in combining flexible work schedules with telecommuting from home.
C. Employees who work overtime.
D. Percentage of employees who do not have a computer at home.
E. None of the above

3.4. Identify bias.

4. Suppose that a local government agency is interested in gauging public opinion about natural gas drilling in northeastern Pennsylvania by surveying residents who live near a proposed drilling site. Which of the following questions is leading?

A. Do you support the proposed gas drilling?
B. Given the positive economic impact, do you support gas drilling?
C. Given the negative impact on the environment, do you oppose gas drilling?
D. Both A and B.
E. Both B and C.

3.2. Identify population, sample, sampling frame, and parameter.

5. The online MBA director at a large business school surveys a sample of current students to determine their level of satisfaction with the program. She finds that 67% are "very satisfied" with the online program. This is a

A. parameter.
B. statistic.
C. target population.
D. sampling frame.
E. good result.

3.4. Identify bias.

6. A women's advocacy group believes that there is gender discrimination in the financial services industry. One member of the group, a financial analyst, offers to survey a sample of women at her company about this issue. Which of the following statements is true about the proposed study?

A. It involves a stratified sample that is representative of the population.
B. It involves a simple random sample that is representative of the population.
C. It involves a convenience sample and may not be representative of the population.
D. It will result in unbiased data.
E. It involves taking a census of the target population.

3.4. Identify bias.

7. During the BP Gulf oil crisis in the summer of 2010, a local television news program routinely asked viewers to call in with their opinion about proposed solutions to the problem. These results were likely biased because

A. of a bad sampling frame.
B. of an undefined target population.
C. leading questions.
D. of a voluntary response sample.
E. of measurement error.

3.2. Identify population, sample, sampling frame, and parameter.
8. In May, 2010, the *Pew Research Center for the People & the Press* carried out a national survey to gauge opinion on the Arizona Immigration Law. It found that 59% approved of the new law. This is a

A. statistic.
B. parameter.
C. target population.
D. sampling frame.
E. census.

3.2 and 3.3. Analyze the sampling method.
9. The HR department of a large company wants to determine how often to bring representatives from the financial firm managing employee pensions on site to meet with individuals about their retirement plans. In order to determine level of interest, they decide to survey employees. Suppose they group employees by age categories (e.g., *under 30; 30 – under 45; 45 – under 60, 60 or older*) and randomly select 50 individuals from each category. This sampling plan is called

A. Simple Random Sampling
B. Stratified Sampling
C. Cluster Sampling
D. Systematic Sampling
E. Convenience Sampling

3.2 and 3.3. Analyze the sampling method.
10. The HR department of a large company wants to determine how often to bring representatives from the financial firm managing employee pensions on site to meet with individuals about their retirement plans. In order to determine level of interest, they decide to survey employees. Suppose they select one department (e.g., *Sales*) and survey all employees within that department. This sampling plan is called

A. Simple Random Sampling
B. Stratified Sampling
C. Cluster Sampling
D. Systematic Sampling
E. Convenience Sampling

3.1. Identify the three ideas of sampling.
11. If you open a new department store, reasons not to survey all of the area residents to understand their needs would not include

A. Difficulty accessing the entire population
B. Cost
C. Bias
D. Time consuming

Chapter 3: Surveys and Sampling – Quiz D – Key

1. A
2. D
3. B
4. E
5. B
6. C
7. D
8. A
9. B
10. C
11. C