Moore SCC 9e

Chapter 2

1. If a statistical study systematically favors certain outcomes, then it is called:

a. A voluntary response sample

b. A convenience sample

c. A simple random sample

*d. Biased

A. Incorrect. This is a type of sampling which leads to systematically favoring certain outcomes, or bias.
B. Incorrect. This is a type of sampling which leads to systematically favoring certain outcomes, or bias.
C. Incorrect. The purpose of the SRS is to help reduce systemically favoring certain outcomes, or bias.
D. Correct. Anything that systematically favors certain outcomes in our sampling is a bias.

Text Reference: Section 2.1: How to sample badly, p. 22

2. American Idol asks viewers to call in to vote on their favorite performer. This is an example of:

a. convenience sampling

*b. voluntary response sampling

c. simple random sampling

d. an observational study

A. Incorrect. Although it may be convenient to call in, only those who wish to call in will—a voluntary response sample is better.
B. Correct. Only those that wish to participate will call in.
C. Incorrect. Viewers weren't randomly chosen to cast their votes.

D. Incorrect. The producers aren't observing the viewers' favoritism towards candidates.

Text Reference: Section 2.1: How to sample badly, p. 22

3. You decide to conduct a sample survey of 10 classmates about the university's new alcohol policy. You decide to survey the first 10 people to walk in the door. This is an example of:

*a. convenience sampling

b. voluntary response sampling

c. simple random sampling

d. an observational study

A. Correct. Only those 10 people, who were convenient to choose, were included in your sample.
B. Incorrect. Those that want to participate in the survey won't have the opportunity if they are not the first 10 people who come through the door.
C. Incorrect. Not everyone has an equal chance of participating in the survey.
D. Incorrect. We are conducting a sample survey, not an observational study.

Text Reference: Section 2.1: How to sample badly, p. 22

4. *Women's Daily*, a magazine which caters primarily to an over-40 female audience, conducts a survey in their magazine about which sex (male or female) cheats more. This survey is biased because:

a. The opinions may be very different from those of the population as a whole.

b. The survey over represents some parts of the population and underrepresents others.

c. Only those that feel strongly about the position may respond to the poll.

*d. All of the choices are correct.

A. Incorrect. Although this is one reason, the others are as well.
B. Incorrect. Although this is one reason, the others are as well.
C. Incorrect. Although this is one reason, the others are as well.

D. Correct. All the items mentioned lead to bias.

Text Reference: Section 2.1: How to sample badly, p. 23

5. A sampling method that best avoids bias is:

a. A voluntary response sample

b. A convenience sample

*c. A simple random sample

d. None of the choices are correct.

A. Incorrect. A voluntary response sample leads to bias because only those that wish to participate in the survey will.
B. Incorrect. A convenience sample leads to personal bias because the person conducting the survey does not give everyone an equal chance to participate in the survey.
C. Correct. Randomizing who participates in a survey best avoids bias.
D. Incorrect. A simple random sample best avoids bias.

Text Reference: Section 2.2: Simple random samples, p. 24

6. One way to choose a random sample is:

a. Put all the names in a hat and draw out a handful.

b. Arrange all names in alphabetical order and then pick the first ten in the list.

c. Assign each individual a number and use www.randomizer.org

d. Both putting all names in a hat and drawing out a handful and arranging all names in alphabetical order and then picking the first ten in the list.

*e. Both putting all names in a hat and drawing out a handful and assigning each individual a number and using www.randomizer.org

A. Incorrect. Although this is a way to randomize, using www.randomizer.org is also a way to randomize.

B. Incorrect. This is not random because you are choosing individuals whose names appear first in the alphabet.
C. Incorrect. Although this is a way to randomize, drawing from a hat is also a way to randomize.
D. Incorrect. Although drawing from a hat is a way to randomize, arranging names in alphabetical order and picking the first ten in the list is not a way to randomize.
E. Correct. Drawing from a hat and using www.randomizer.org are both ways to choose a random sample.

Text Reference: Section 2.2: Simple random samples, p. 27

7. You want to conduct an SRS of eight people in the class. The following people are in your class: Andrew, Bill, Chris, Dave, Ellen, Frank, Greg, Hank, Iggy, Judy, Ken, Larry, Maureen, Nancy, Otto, Pauline, Ron, Sam, Tom, Uma, Vivian, Warren, Xavier, Yan, and Zander. How would you get your sample?

a. Choose the first eight people who walk in the door

b. Choose the eight people that you know would answer the survey

c. Arrange the items alphabetically and choose the first eight people in the list.

*d. Assign them numbers from 01 to 25 and use the table of random digits.

e. All of the choices are valid for an SRS.

A. Incorrect. This is convenience sampling.
B. Incorrect. This is convenience sampling.
C. Incorrect. This is convenience sampling.
D. Correct. Using the table of random digits is a way to randomize individuals for your sample.
E. Incorrect. All are convenience sampling methods except for the method that uses the table of random digits

Text Reference: Section 2.2: Simple random samples, p. 28

8. Suppose you wanted to use the table of random digits to choose four people from the following list of people: Andrew, Bill, Chris, Dave, Ellen, Frank, Greg, Hank, Iggy, Judy, Ken, Larry, Maureen, Nancy, Otto, Pauline, Ron, Sam, Tom, Uma, Vivian, Warren, Xavier, Yan, and

Zander. Assigning the list a number in order from 01 to 25 and using Line 116 in the table would get the sample:

a. Nancy, Dave, Warren, Xavier

b. Nancy, Zander, Greg, Ellen

*c. Nancy, Chris, Judy, Warren

d. Nancy, Andrew, Chris, Vivian

A. Incorrect. Check the table of random digits and try again.
B. Incorrect. Check the table of random digits and try again.
C. Correct. Using the table of random digits, you would get these four individuals.
D. Incorrect. Check the table of random digits and try again.

Text Reference: Section 2.2: Simple random samples, p. 28

9. Suppose a packaging inspector decides to inspect a sample from a crate of eggs for freshness. Each crate has 5 trays of 30 eggs each stacked on top of each other. The inspector decides to examine only the top row. Why is this sample biased?

a. Each egg didn't have an equal chance of being chosen in the sample.

b. The top row may not be representative of the entire crate of eggs for freshness.

c. The inspector was convenience sampling which is typically biased.

*d. All of the choices are correct.

A. Incorrect. Although this is a reason, the others are as well.
B. Incorrect. Although this is a reason, the others are as well.
C. Incorrect. Although this is a reason, the others are as well.
D. Correct. All the reasons listed above are why the sample is biased.

Text Reference: Section 2.1: How to sample badly, p. 24

10. How do you allow impersonal chance to choose the sample for your survey?

a. Choose a selection of individuals that is easiest to reach.

b. Have the subjects/individuals choose themselves based on appeal.

*c. Conduct a random sample.

d. Choose the first few items in a list of individuals/subjects.

A. Incorrect. This is convenience sampling which leads to bias.
B. Incorrect. This is an example of voluntary response which leads to bias.
C. Correct. SRS is the best way to allow impersonal chance.
D. Incorrect. This is convenience sampling which leads to bias.

Text Reference: Section 2.2: Simple random samples, p. 25