

AP Stats

Practice Questions - Chap 11

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Answer the question.

- 1) The human resources department of a large, well-known telecommunications firm would like to know the job satisfaction of the employees working at its company. The HR department's goal is to have every employee participate in this survey. For this scenario, what sampling method best fits HR's goal? 1) _____
 - A) Systematic sampling
 - B) Attempted census
 - C) Convenience sampling
 - D) Stratified sampling
 - E) Simple random sampling

- 2) Jennifer is a quality control inspector for a well-known computer modem manufacturer. Jennifer oversees five assembly lines, each assembly line produces the same number of modems per day. Jennifer randomly selects one assembly line each morning and performs further sampling and quality control procedures on that assembly line's modems for the rest of the day. This morning, Jennifer randomly selected the modems of assembly line #5 for quality control inspection. Furthermore, Jennifer will then perform systematic sampling on that assembly line's modems. What has been excluded from being in the sampling frame today? 2) _____
 - A) An unbiased sample for assembly line #5
 - B) The modems of assembly lines #1, 2, 3, and 4
 - C) A sampling method for assembly line #5
 - D) Some of the modems of assembly line #5
 - E) Nothing has been excluded from the sampling frame.

- 3) A magazine publisher mailed a survey to all of its subscribers asking if the magazine is helpful in their daily lives. Of those who responded, 78% replied that the magazine was helpful. The proportion that replied that the magazine is helpful is known as what? 3) _____
 - A) The sampling frame
 - B) The sampling method
 - C) The bias
 - D) The population
 - E) The population parameter of interest

- 4) The human resources manager of a large, well-known telecommunications firm wants to improve manager/employee relationships throughout the company. This HR manager wants to have several focus groups, each filled with randomly selected managers and employees in proportion to the company's overall manager/employee ratio. What sampling method best describes what is wanted by the HR manager? 4) _____
 - A) Attempted census
 - B) Cluster
 - C) Voluntary response sampling
 - D) Convenience
 - E) Stratified

- 5) A magazine publisher mails a survey to every subscriber asking about the timeliness of its subscription service. The publisher finds that only 4% of the subscribers responded. This 4% represents what? 5) _____
- A) The sampling method
 - B) The sample
 - C) A census
 - D) The sampling frame
 - E) The population parameter of interest
- 6) George, a network engineer, ordered 400 CAT 5e Ethernet cables for use at his company's network. After receiving these cables, he decided to randomly test 120 of these cables before using them. He was alarmed to find out that 89% of these cables failed completely. He returned the entire lot to the manufacturer. When he tested the cables, what was George's sample? Round to the nearest integer. 6) _____
- A) 107 cables B) 356 cables C) 280 cables D) 400 cables E) 120 cables
- 7) A computer network manager wants to test the reliability of some new and expensive fiber-optic Ethernet cables that the computer department just received. The computer department received 8 boxes containing 30 cables each. The manager does not have the time to test every cable in each box. The manager will choose one box at random and test 6 cables chosen randomly within that box. What is the population? 7) _____
- A) The 6 cables chosen randomly for testing
 - B) The one box that was chosen at random from the 8 boxes
 - C) 240 cables
 - D) The proportion of reliable cables
 - E) The 8 boxes
- 8) A magazine publisher mails a survey to every subscriber asking about the quality of its subscription service. The total number of subscribers represents what? 8) _____
- A) A census
 - B) The population parameter of interest
 - C) The sampling frame
 - D) Involuntary sampling
 - E) The population
- 9) A magazine publisher will mail a survey to 14% of its subscribers that will be chosen at random. The survey asks about the quality of its subscription service. All of the subscribers, who have an equal and random chance to be chosen for this survey, represent what? 9) _____
- A) A census
 - B) The sampling frame
 - C) The population parameter of interest
 - D) The population
 - E) The sampling method

- 10) The human resources manager of a large, well-known telecommunications firm is genuinely concerned about the well-being of the company's employees. This HR manager will e-mail everyone within the company asking for suggestions in improving the health of employees working there. The manager will list specific problems that may affect an employee, including weight, smoking, and stress. For this scenario, what sampling method is being used? 10) _____
- A) Stratified sampling
 - B) Attempted census
 - C) Voluntary response sampling
 - D) Multistage sampling
 - E) Cluster sampling
- 11) A computer network manager wants to test the reliability of some new and very expensive fiber-optic Ethernet cables that the computer department just received. The computer department received 9 boxes containing 50 cables each. The manager does not have the time to test every cable in each box, so the manager assigns a subordinate to do a census. How many cables will be sampled if the subordinate does a census? 11) _____
- A) It will depend on the sampling of cables and the sampling of boxes (the sampling frame).
 - B) 10 cables
 - C) 50 cables
 - D) 450 cables
 - E) 9 cables
- 12) Mr. Smith works at a computer consultant company that provides technical information to computer departments of various manufacturing companies. Mr. Smith is alarmed at the number of spyware programs on the internet. Mr. Smith attempts to call every one of his clients only to ask (yes or no) if they have had any known problems with spyware infections on their computers or network. With regards to Mr. Smith's attempts to contact his clients for information about infections, what is the population? 12) _____
- A) Only the total number of clients that Mr. Smith successfully contacts
 - B) The total number of infections of spyware on Mr. Smith's clients' computers
 - C) The total number of computers at all of Mr. Smith's clients
 - D) The total number of clients that Mr. Smith has
 - E) Only the number of computers infected with spyware that Mr. Smith is informed of

Identify the bias.

- 13) A cereal manufacturer randomly samples households across the country by telephone. The survey asks the consumer to explain honestly in fifty words or less why he or she likes or dislikes its brand of cereals. It is also stated that for those who participate in this telephone survey, a random drawing will be held for an all-expense paid, two-week cruise. What, if any, will be the most noticeable bias for this survey? 13) _____
- A) Response bias
 - B) Nonresponse bias
 - C) Undercoverage of the population
 - D) Voluntary response bias
 - E) There does not seem to be any bias.

- 14) A newspaper conducted a random telephone survey during the day regarding the percentage of stay-at-home moms and dads in the typical household. What, if any, will be the most noticeable bias for this survey? 14) _____
- A) Voluntary response bias
 - B) Response bias
 - C) Undercoverage of the population
 - D) Nonresponse bias
 - E) There does not seem to be any bias.
- 15) A newspaper reporter decided to sample residents of all major metropolitan areas in the entire country. This sampling asked if the residents liked living in their city, or are they considering moving, and if so, where? Unfortunately, this survey went over budget and was stopped, and only the east coast of the country was adequately interviewed. With regards to having this survey labeled as representing the entire country, what, if any, will be the most noticeable bias for this survey as it is now? 15) _____
- A) Response bias
 - B) Voluntary response bias
 - C) Undercoverage of the population
 - D) Nonresponse bias
 - E) There does not seem to be any bias.
- 16) A newspaper reporter randomly sampled households by telephone during various times of the day. The people sampled are within the area of the newspaper's distribution. The newspaper reporter asked, "Are you patriotic in a time of war or armed conflict?" What, if any, will be the most noticeable bias for this survey? 16) _____
- A) Voluntary response bias
 - B) Response bias
 - C) Nonresponse bias
 - D) Undercoverage of the population
 - E) There does not seem to be any bias.
- 17) Inside the boxes of a new brand of cereal, is a short survey that can be mailed back for free to the manufacturer. The survey asks the consumer if he or she likes the cereal or not. What, if any, will be the most noticeable bias for this survey? 17) _____
- A) Response bias
 - B) Voluntary response bias
 - C) Nonresponse bias
 - D) Undercoverage of the population
 - E) There does not seem to be any bias.
- 18) Under which of the following conditions is it preferable to use stratified random sampling rather than simple random sampling? 18) _____
- A) The population can be divided into large number of strata so that each stratum contains only a few individuals.
 - B) The population can be divided into strata of equal sizes so that each individual in the population still has the same chance of being selected.
 - C) The population can be divided into strata so that the individuals in each stratum are as much alike as possible.
 - D) The population can be divided into a small number of strata so that each stratum contains a large number of individuals.
 - E) The population can be divided into strata so that the individuals in each stratum are as different as possible.

Provide an appropriate response.

- 19) Which statement about bias is true? 19) _____
- I. Bias results from random variation and will always be present.
 - II. Bias results from a sampling method likely to produce samples that do not represent the population.
 - III. Bias is usually reduced when sample size is larger.
- A) I only
 - B) III only
 - C) II and III only
 - D) I and III only
 - E) II only
- 20) Before premiering a blockbuster movie at a theater, test screenings are done beforehand. A small number of selected theaters are chosen geographically throughout the country. Each theater chosen is supposed to be representative of theatergoers in that area. Everyone is interviewed when the movie is over. Identify the type of sampling used in this example. 20) _____
- A) Multistage sampling
 - B) Voluntary response sampling
 - C) Cluster sampling
 - D) Stratified sampling
 - E) Attempted census
- 21) A newly-premiered play just ended that evening at a local theater. Theater management briefly interviews every fifth person leaving the theater to see if that person will recommend the play at that theater to other people. Identify the type of sampling used in this example. 21) _____
- A) Cluster sampling
 - B) Voluntary response sampling
 - C) Systematic sampling
 - D) Convenience sampling
 - E) Stratified sampling
- 22) At a college there are 120 freshmen, 90 sophomores, 110 juniors, and 80 seniors. A school administrator selects a random sample of 12 of the freshmen, a random sample of 9 of the sophomores, a random sample of 11 of the juniors, and a random sample of 8 of the seniors. She then interviews all the students selected. Identify the type of sampling used in this example. 22) _____
- A) Stratified sampling
 - B) Systematic sampling
 - C) Attempted census
 - D) Voluntary response sampling
 - E) Cluster sampling
- 23) A blockbuster movie had just premiered on exactly 1859 screens throughout the country. Within the first week, a few theaters were chosen at random, and then theater management interviewed approximately 5% of the theatergoers at those selected theaters. All these theatergoers loved the movie, therefore management decided to increase the number of showings per week. Identify the type of sampling used in this example. 23) _____
- A) Multistage sampling
 - B) Systematic sampling
 - C) Voluntary response sampling
 - D) Convenience sampling
 - E) Simple random sampling

- 24) A mega-discount chain store just opened a new clothing store in town emphasizing mainly women's clothing. Before opening, management had to decide whether to only carry either men's, women's, boys', girls', or infants' clothing. After performing representative sampling of potential customers from each of these groups, it was decided to carry only women's clothing. Identify the type of sampling used in this example. 24) _____
- A) Convenience sampling
 - B) Cluster sampling
 - C) Systematic sampling
 - D) Stratified sampling
 - E) Multistage sampling
- 25) During the winter season, a prominent newspaper reporter is interested in writing a story about the lack of proper heating of apartment buildings in the city in which he lives. During a particularly frigid weekend, this reporter manages to interview almost everyone in his own apartment building. The reporter finds that everyone, including himself, is satisfied with the heating in the apartment building. Identify the type of sampling used in this example. 25) _____
- A) Systematic sampling
 - B) Convenience sampling
 - C) Cluster sampling
 - D) Voluntary response sampling
 - E) Attempted census