Bias/Surveys Practice Multiple Choice Questions

1. Each of the 30 major league baseball teams carries a 40 person roster. A sample of 60 players (5 percent of all 1,200 players) is to be randomly selected to undergo drug tests. To do this, each team is instructed to put their 40 names in a hat and randomly draw two names. Will this method result in a simple random sample of the 1,200 baseball players?
   (A) Yes, because each player has the same chance of being selected.
   (B) Yes, because each team is equally represented.
   (C) Yes, because this is an example of stratified sampling, which is a special case of simple random sampling.
   (D) No, because the teams are not chosen randomly.
   (E) No, because not each group of 60 players has the same chance of being selected.

2. An advantage to using surveys as opposed to experiments is that
   (A) Surveys are generally cheaper to conduct.
   (B) It is generally easier to conclude cause and effect from surveys.
   (C) Surveys are generally not subject to bias.
   (D) Surveys involve use of randomization.
   (E) Surveys can make use of stratification.

3. A company wishes to survey what people think about a new product it plans to market. They decide to randomly sample from their customer database as this includes phone numbers and addresses. This procedure is an example of which type of sampling?
   (A) Cluster
   (B) Convenience
   (C) Simple random
   (D) Stratified
   (E) Systematic

4. A food judge is given an assignment to choose and sample the food at 52 (out of over 20,000) NYC restaurants. She has an assistant list all restaurants whose name begins with A, assigns each a number, and uses a random number generator to pick two of these numbers and thus two restaurants. She proceeds to use the same procedure for each letter of the alphabet and combines the results into a group of 52. Which of the following is a true statement?
   (A) Her procedure makes use of chance.
   (B) Her procedure results in a simple random sample.
   (C) Each restaurant in NYC has an equal probability of being selected.
   (D) The restaurant Moosewood probability has a higher probability of being selected than the restaurant Xander.
   (E) This is an example of a systematic sample.
5. Which of the following is most useful in establishing cause-and-effect relationships?
   (A) A complete census
   (B) A least square regression line showing high correlation
   (C) A simple random sample (SRS)
   (D) A well-designed, well conducted survey incorporating chance to ensure a representative sample
   (E) A controlled experiment

6. A sales representative wishes to survey her client base of 47 companies. She has business cards, all of the identical size, from her contacts in the companies, and decides to drop them all in a small box, shake them up, and reach in to pick 5 cards for her sample. This procedure is an example of which type of sampling.
   (A) Cluster
   (B) Convenience
   (C) Simple random
   (D) Stratified
   (E) Systematic

7. A newspaper advice columnist asks her readers if they would have married their current spouse if they had it to do over again. Of the 25,000 or so responses, 80 percent said no. What does this show?
   (A) The survey is meaningless because of voluntary response bias.
   (B) No meaningful conclusion is possible without knowing something more about the characteristics of her readers.
   (C) The survey would have been more meaningful if she had picked a random sample of the 25,000 readers who responded.
   (D) The survey would have been more meaningful if she had used a control group.
   (E) This was a legitimate sample, randomly drawn from her readers, and of sufficient size to allow the conclusion that most of her readers who are married would have second thoughts about marrying their current spouse.

8. A researcher planning a survey of heads of households in New York has census lists for each of the 62 counties in the state. The procedure will be to obtain a simple random sample of heads of households from each of the counties rather than grouping all the census lists together and obtaining a sample from the entire group. Which of the following is not a true statement about the resulting stratified sample?
   (A) It is more susceptible to bias than would be a simple random sample.
   (B) It is easier and more cost effective than a simple random sample.
   (C) It gives comparative information that a simple random sample wouldn’t give.
   (D) It recognizes that opinions of heads of household in rural NY communities may differ from those in urban communities.
   (E) All of the above are true statements.
9. Sampling error occurs
   (A) When interviews make mistakes resulting in bias.
   (B) When interviewers use judgment instead of random choice in picking the sample.
   (C) When samples are too small.
   (D) Because a sample statistic is used to estimate a population parameter.
   (E) In all of the above cases.

10. In general, for a survey to yield usable results:
   (A) A sample size of n = 30 is usually sufficient.
   (B) Researches must be careful in the way questions are worded.
   (C) Researchers must carefully choose people who they think are representative of the population.
   (D) A census is the only truly accurate methodology.
   (E) Sampling error must be avoided.

11. A bank wishes to survey its customers. The decision is made to randomly pick ten customers who just have checking accounts, ten customers who just have savings accounts, and ten customers who have both checking and savings accounts. This procedure is an example of which type of sampling?
   (A) Cluster
   (B) Convenience
   (C) Simple Random
   (D) Stratified
   (E) Systematic

12. Which of the following is a true statement?
   (A) If bias is present in a sampling procedure, it can be overcome by dramatically increasing the sample size.
   (B) There is no such thing as a “bad sample.”
   (C) Sampling techniques that use probability techniques effectively eliminate bias.
   (D) Sampling techniques that allow the surveyor to choose participants with care and precision go a long way to control bias.
   (E) In choosing a sample size, actual sample size is more important than the fraction of the population that is surveyed.

13. To find out a town's average family size, a researcher interviews a random sample of parents arriving at a pediatrician's office. The average family size in the final 100-family sample is 3.48. Is this estimate probably too low or too high?
   (A) Too low because of undercoverage bias.
   (B) Too low because convenience samples underestimate average results.
   (C) Too high because of undercoverage bias.
   (D) Too high because convenience samples overestimate average results.
   (E) Too high because voluntary response samples overestimate average results.
14. Two wordings for a questionnaire on independence for Puerto Rico:
   I. Would you vote for independence for Puerto Rico?
   II. Would you support an independent Puerto Rico separate from the U.S.?

   One of these questions showed 35 percent support for independence while the other showed 45 percent support. Which produced which result and why?

   (A) The first questionnaire showed the 45 percent because of lack of randomization in choice of subjects as evidenced by wording of the questions.
   (B) The first question showed 35 percent because of the placebo effect.
   (C) The first question showed 45 percent due to lack of blocking.
   (D) The first question showed 35 percent because of response bias due to the wording of the question.
   (E) The first question showed 45 percent because of response bias due to the wording of the question.

15. A telephone survey with regard to support of a bond issue resulted in the table below.

<table>
<thead>
<tr>
<th>Age</th>
<th>21-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
<th>61-70</th>
<th>71-80</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>For</td>
<td>45</td>
<td>32</td>
<td>28</td>
<td>28</td>
<td>15</td>
<td>8</td>
<td>153</td>
</tr>
<tr>
<td>Against</td>
<td>30</td>
<td>43</td>
<td>47</td>
<td>47</td>
<td>60</td>
<td>67</td>
<td>297</td>
</tr>
</tbody>
</table>

Which of the following sampling strategies was most likely used?

   (A) Cluster sampling
   (B) Proportional sampling
   (C) Simple random sampling
   (D) Stratified sampling
   (E) Systematic sampling

16. A human resources department plans to survey 100 of the 3,000 employees in the firm. An alphabetical list of the employees is available, a random number between 1 and 30 is picked, and the sample consists of the person that far down the list together with every 30th person after that. This procedure is an example of which type of sampling?

   (A) Cluster
   (B) Convenience
   (C) Simple random
   (D) Stratified
   (E) Systematic

17. To conduct a survey on holiday shopping patterns, a researcher opens a telephone book to a random page, closes his eyes, puts his finger down on the page, and then reads off the next 100 names. Which of the following is not a true statement?

   (A) The survey incorporates chance.
   (B) The procedure results in a systematic sample.
   (C) The procedure could easily result in selection bias.
   (D) The procedure is not a simple random sample.
   (E) The use of a phone book will result in undercoverage bias.