

## Chapter 2, Test Form A

## Answer Key

1. Selection bias occurs when some part of the population is systematically excluded from the sample. Non-response bias occurs when responses are not actually obtained from all individuals who were selected for the sample. With response bias, however, responses are obtained from the subjects, but the method of observation tends to produce values that systematically differ from the true population value in some way.
2.
  - a) To select a simple random sample of size 20, we could number the subjects from 0001-1000 and use a random digit table. On the table, we would look at sets of 4 digits until 20 numbers from 0001-1000 were selected (ignoring any repeats) and these would be the selected sherd numbers.
  - b) First, the sample size from each site would need to be determined; the numbers could be proportional to the total numbers associated with that site, for example. Then a simple random sample from each site would be selected in a manner similar to part (a). When sampling from any one site, random digits from other sites would be ignored, as would repeats.
3. This study is an observational study since the explanatory variable was not manipulated by the researchers and the subjects were not randomly assigned to different treatments. Instead, the researchers simply observed the number of trout visible during the day and during the evening.
4.
  - a) The two treatments will be: 1. The subject is recorded and 2. The subject is not recorded.
  - b) I would use blocking (pairing) to control the experience level of players. I would pair the two most experienced together as one block, the next two most experienced as the next block, and so on. Then the two members of each block would be randomly split into the two treatment groups. This way each treatment group should be roughly the equivalent with regard to experience level.
  - c) No, the results of this study should not be generalized to all male tennis players for at least two reasons. One, competitive tennis players are presumably more used to playing in front of crowds and would be less bothered by video recording than the typical player. Two, volunteers are not generally representative of any larger population.  
Note: either reason should be sufficient to receive credit.