**CBA: Practice Problem Set 4**

**Topics: Sampling, Confidence Intervals for Mean**

1. For each of the following statements, indicate whether it is True/False. If false, explain why.
2. The sample size of the survey should at least be a fixed percentage of the population size in order to produce representative results.
3. The sampling frame is a list of every item that appears in a survey sample, including those that did not respond to questions.
4. Larger surveys convey a more accurate impression of the population than smaller surveys.
5. *PC Magazine* asked all of its readers to participate in a survey of their satisfaction with different brands of electronics. In the 2004 survey, which was included in an issue of the magazine that year, more than 9000 readers rated the products on a scale from 1 to 10. The magazine reported that the average rating assigned by 225 readers to a Kodak compact digital camera was 7.5. For this product, identify the following:
6. The population
7. The parameter of interest
8. The sampling frame
9. The sample size
10. The sampling design
11. Any potential sources of bias or other problems with the survey or sample
12. A book publisher monitors the size of shipments of its textbooks to university bookstores. For a sample of texts used at various schools, the 95% confidence interval for the size of the shipment was 250 ± 45 books. Which, if any, of the following interpretations of this interval are correct?
13. All shipments are between 205 and 295 books.
14. 95% of shipments are between 205 and 295 books.
15. The procedure that produced this interval generates ranges that hold the population mean for 95% of samples.
16. If we get another sample, then we can be 95% sure that the mean of this second sample is users between 205 and 295.
17. We can be 95% confident that the range 160 to 340 holds the population mean.

4.An article in USA Today discusses things Americans to try to rid themselves of junk e-mail .If a random sample of 1,200 Internet users yields an average of 43 junk email messages per day, and the standard deviation is 14, give 99% confidence interval for the average daily number of unwanted e-mail messages received by an American.

5. Find the minimum required sample for estimating the average number of designer shirts sold per day to within 10 units with 90% confidence if the standard deviation of the number of shirts sold per day is about 50.