1.  True: The representation of the survey results should have a sample size. The sample size must be a fixed percentage of the total population size of the survey.

2. False: The sampling frame refers to a list of an item which responds to the question and not the ones which do not respond to the questions.

3. True: The larger conveys a more accurate impression of the population as larger surveys involve large sample size which reduces the chances of error.

A.The population  
Ans) p=x/n=225/9000=0.025  
B.The parameter of interest  
Ans) sample size,average,scale  
C.The sampling frame  
Ans)9000  
D.The sample size  
Ans 225  
E.The sampling design  
F.Any potential sources of bias or other problems with the survey or sample

1. What are the chances that

*X*  ** ?

It isn't, most of the time. The sample mean xbar is an unbiased estimator of the population mean mu. Assuming the sample is a proper one, the sample mean will vary about the true mean, it is usually close. The sample mean is our best “guess” of the value of the true mean. Due to the Central Limit Theory we know that the distribution of sample means will be normally distributed around the true mean.

1. 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?

The 95% confidence interval for the size of shipment was books.

All shipments are not between 205 and 295 books. Because due to 95% confidence interval for the size of shipment not all shipments.

The known statement is not correct

1. Which is shorter: a 95% *z*-interval or a 95% *t*-interval for *μ* if we know that σ =s?

**Answer:**

A. The z-interval is shorter

bcoz it tell us difference between mean of distribution and data points in standard deviation .

7.How many randomly selected employers (minimum number) must we contact in order to guarantee a margin of error of no more than 4% (at 95% confidence)?

margins of error estimate is 1/sqrt(n)  
if 0.04=1/25 is margin of error

then n=25^2 or 625.  
Choose 600.

8.Suppose we want the above margin of error to be based on a 98% confidence level. What sample size (minimum) must we now use?

We want to construct a 98% confidence interval for p with a margin of error equal to 4%.

Because there is no estimate of the proportion given, we use p~=0.50 for a conservative estimate.

For a 98% confidence interval, z∗=2.326

n=(3381.42)X(0.5)(1−0.5)=848

This is the minimum sample size, therefore we should

9Examine the following normal Quantile plots carefully. Which of these plots indicates that the data?

1. Are nearly normal?
2. Have a bimodal distribution? (One way to recognize a bimodal shape is a “gap” in the

spacing of adjacent data values.)

1. Are skewed (i.e. not symmetric)?
2. Have outliers on both sides of the center?

1.C and D are nearly normal

2.A is skewed

3.B and D have outliers on both side

10

The manager of a warehouse monitors the volume of shipments made by the delivery team. The automated tracking system tracks every package as it moves through the facility. A sample of 25 packages is selected and weighed every day. Based on current contracts with customers, the weights should have μ = 22 lbs. and σ = 5 lbs.

1. Before using a normal model for the sampling distribution of the average package weights, the manager must confirm that weights of individual packages are normally distributed.

Ans.True

1. The standard error of the daily average SE(𝑥̅) = 1

Ans.False

Type-1 error occurs if mean weight and std deviation do not change

11

An educational startup that helps MBA aspirants write their essays is targeting individuals who have taken GMAT in 2012 and have expressed interest in applying to FT top 20 b-schools. There are 40000 such individuals with an average GMAT score of 720 and a standard deviation of 120. The scores are distributed between 650 and 790 with a very long and thin tail towards the higher end resulting in substantial skewness. Which of the following is likely to be true for randomly chosen samples of aspirants?

1. The standard deviation of the scores within any sample will be 120.

The SEM is sd/sqrt(n)=120/sqrt(40000)=0.6

SD will not be 120 of scores in any one sample, especially since we don't know the sample size.

2.The standard deviation of the mean of across several samples will be 120.

SD of mean across several samples will also not be 120. It will be less; indeed, probably about 0.6

The mean score in any sample will be 720.

The mean score in any sample will be 720. Maybe, but no reason it couldn't be less or more.

The average of the mean across several samples will be 720.

The average of the mean across several samples will be 720. This is certainly possible, but it requires the mean of all samples that sample size, which would be the case

The standard deviation of the mean across several samples will be 0.60

The SEM will be 0.60. This is likely, given the sample size, which even with a lot of skewness will tend towards normality given the sample size. I would use this in calculations. The mean would have an expected value of 720, but in calculations, the SEM is 0.6.