**Confidence Intervals**

1) i) TRUE – The survey should have a specific sample size, a fixed percentage of population

That helps to analyse the data well to give more accurate results.

ii) FALSE – The sample should contain only those items that have responded because the items

with no response adds no value the analysis and just increases the size of data.

iii) TRUE – More the size of sample, it captures maximum patterns that helps to build an

accurate model.

2) a) p=x/n

=225/9000

= 0.025

b) Sample size, average, scale

c) All readers of the issue where the survey was included.

d) 225

e) Voluntary response.

f) It is possible that only those who were particularly pleased or only who are displeased with

the product participated in the survey which can makes the results unreliable.

3) i) True – Confidence interval identifies the collection of values for the population parameter that are consistent with the observed sample.

ii) False – We have evidence in that direction but we cannot confirm 100% based on this data, we have to consider the values out of this range.

iii) False – We should have a moderately large sample, the central limit theorem implies that

the sampling distribution is normal regardless of the data itself.

4) There is 50% chance that the Sample Mean(X) is greater than the population mean ().

5) i) here

X=0.046, n=2000, z95=1.96, q=0.954

95% confidence interval for the proportion of the web users using Mozilla is

X+Z = 0.146+ 1.96 =0.046+ 0.00918 = 0.0368-0.0551

n 2000

ii) In this case, we have data on the entire population and the sample value accurately reflects

the population numbers. Thus, we can conclude that the share is less than 5%.

6) a) Incorrect – the interval of (205,295) is for 95% confidence not for 100%.

b) Incorrect – the interval doesn’t describe individual shipments.

c) Correct – 95% of intervals credited in this way contain the true population mean.

d) Incorrect – the interval doesn’t describe the mean of another sample.

e) Incorrect – the interval doesn’t correspond to a 95% confidence level.

7) the z-interval is shorter.

8) margin of error estimate is 1/sqrt(n)

If 0.04=1/25 is margin of error

Then n=25^2=625

= 600

9) 98% confidence (Z – score) = 2.326

N=(Z)2\*P\*Q/ (M.E)2 = (2.326)2\*(0.4) (0.4)2 / (0.04)2

= 0.865/0.0016

= 543