Q1) For each of the following statements,indicate whether it is True or False.If False, explain why;

A) The sample size of the survey should at least be a fixed percentage of the population size in order
to produce representative results.
Ans) False
Reason : A sample size of 30 is considered large enough,but that may or may not be adequate.

B) The sampling frame is a list of every item that appears in a survey sample, including those that
did not respond to questions.
Ans) True
Reason : The population is generic and the sampling frame is a specific list of all items in the population.
Hence the sampling frame includes those that did not respond to questions.

C) Larger surveys convey a more accurate impression of the population than smaller surveys.
Ans) True

Q2) 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;
A) The population.
B) The parameter of interest.
C) The sampling frame.
D) The sample size.
E) The sampling design.
F) Any potential sources of bias or other problems with the survey or sample.
Ans) A) The population is all the readers of PC magazine.
B) The parameter of interest is sample size,average and scale.
C) The sampling frame is readers that rated the products (around 9000).
D) The sample size is 225.
E) The sampling design
F) Any potential sources of bias or other problems with the survey or sample is the selection of readers,
selection of the issue which will contain the survey.

Q3) For each of the following statements, indicate whether it is True or False.If False,explain why;

A) If the 95% confidence interval for the average purchase of customers at a department store is $50
to $110, then $100 is a plausible value for the population mean at this level of confidence.
Ans) True
Reason : The 95% confidence interval for the average purchase of customers at a department store is $50
to $110 which means that there is a 95% chance that the population mean will fall between $50 and $100.
Hence as $100 falls between $50 and $110,it is a plausible value for the population mean at this confidence level.

B) If the 95% confidence interval for the number of moviegoers who purchase concessions is 30% to 45%,
this means that fewer than half of all the moviegoers purchase concessions.
Ans) True
Reason : The 95% confidence interval for the number of moviegoers who purchase concessions is 30% to 45%
this means that there is a 95% chance that only 30% to 45% of moviegoers purchase concessions,which is
less than 50%.Hence we can infer that fewer than half of all the moviegoers purchase concessions.

C) The 95% confidence interval for mean only applies if the sample data are nearly normally distributed.
Ans) True

Q4) What are the chances that X(bar) > mean ?
A) 1/4
B) 1/2
C) 3/4
D) 1
Ans) 1 (Option D)
Reason : Mean of sample means is equal to the population mean.

Q5) In January 2005, a company that monitors Internet Traffic (WebSideStory) reported that its sampling
revealed that the Mozilla Firefox browser launched in 2004 had grabbed a 4.6% share of the market;

A) If the sample were based on 2000 users,could Microsoft conclude that Mozilla has a less than 5% share

of the market ?
Ans) No

B) WebSideStory claims that its sample includes all the daily internet users.If that's the case,then can Microsoft conclude that Mozilla has a less than 5% share of the market ?
Ans) Yes

Q6) A book publishers 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 ?

A) All shipments are between 205 and 295 books.
Ans) Incorrect

B) 95% of shipments are between 205 and 295.
Ans) Correct

C) The procedure that produced this interval generates ranges that hold the population mean for the 95% of samples.
Ans) Correct

D) If we get another sample,then we can be 95% sure that the mean of this second sample is between 205 and 295.
Ans) Correct

E) We can be 95% confident that the range 160 to 340 holds the population mean.
Ans) Incorrect

Q7) Which is shorter: a 95% Z-interval or a 95% t-interval for mean if we know that sigma = s ?
A) The Z interval is shorter
B) The t interval is shorter
C) Both are equal
D) We cannot say
Ans) 95% confidence interval for mean is shorter for Z interval because t critical is greater than Z critical value.
Hence, Z interval is always shorter because t critical value cannot be smaller than Z critical value.
Option A is correct.

Questions 8 and 9 are based on the following; To prepare a report on the economy,analysts need to estimate the percentage
of businesses that plan to hire additional employees in the next 60 days.

Q8) 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) ?
A) 600
B) 400
C) 550
D) 1000
Ans) Margin of error estimate is 1/sqrt(n)
if 0.04 = 1/25 is the margin of error
Then n = 25^2 = 625
Hence choose 600
Option A is correct.

Q9) Suppose we want the above margin of error to be based on a 98% confidence level.What sample size (minimum) must
we now use ?
A) 1000
B) 757
C) 848
D) 543
Ans) Here Z = 2.576
Margin of Error = Z * [sqrt(p*q)/n]
0.04 = 2.576 * [sqrt(0.5*0.5)/n]
n = 845