**Basic Statistics (Module – 4 (Part – 2))**

**1**.  (i) 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.

(ii) 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.

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

2)

A. The population : All the pc magazine users

B. The parameter of interest : satisfaction with different brands of electronics.

C. The sampling frame: 225

D. The sample size: 225

E. The sampling design : 7.5.

3)

(i) 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 moviegoers purchase concessions.

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4) B

5) (i) Yes, its true we can draw inferences on population based on our sample . Another best example is our covid-vaccine .The vaccine will be tested on random people and conclude it succesfull if it works suceesfully on them.

(ii) Actually, it’s a very rare case that all the internet users in the world come under a random sample. If that’s the case we can consider another sample and work on it.

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

7) B

8) A

9) C

10) 1) C

2) D

3) A

4) B

11) (i) Yes , He has to check the individual package is following a normal dist or not . If he was considering 30+ packages then according to central limit theorem the distribution would come under normal.

(ii) True . The error formula is [st deviation/ under root (n)]

Standard dev=5,n=25 . So the error is 1.

12)

**(D)** We're in the xbar distribution (sample mean distribution, or distribution of sample means). In this case the center is at mu = 50 and the standard error is SE = s/sqrt(n) = 40/sqrt(100) = 40/10 = 4.This distribution is normally distributed because of the central limit theorem. The fact that n = 100 makes n > 30 true indicates that we can use this idea.Tthe value of P(45 < x < 55) is roughly 0.7887, Subtracting 1 from that value gives 1-0.7887 = 0.2113 which converts to 21.13%.That rounds to 21.1%.

14) E