NCERT MOST IMPORTANT QUESTIONS CLASS – 11 | Statistics for Economics CHAPTER – 2 Collection of Data

Q1. You want to research on the popularity of Vegetable Atta Noodles among children. Design a suitable questionnaire for collecting this information.

Answer

QUESTIONNAIRE

1. Do you eat Noodles?
□ Yes □ No

2. Do you like Vegetable Atta Noodles more than other snacks?
□ Yes □ No

3. How many packets do you consume in one month?
□ Less than 2 □ Less than 5 □ More than 5

4. Do you prefer Atta noodles over Maida noodles?
□ Yes □ No

5. Which vegetable according to you should be added in present Atta noodles?

6. When do you prefer to have Vegetable Atta Noodles?
□ Breakfast □ Lunch □ Evening Snacks □ Dinner

7. Do your parents accompany you while having noodles?
□ Yes □ No

Q2. In a village of 200 farms, a study was conducted to find the cropping pattern. Out of the 50 farms surveyed, 50% grew only wheat. Identify the population and the sample here.

Answer
Population or the Universe in statistics means totality of the items under study. So, the population here is 200 farms.Sample refers to a group or section of the population from which information is to be obtained. Out of 200 farms, only 50 farms are selected for survey. Therefore, the sample population is 50 farms.

Q3. Give two examples each of sample, population and variable.

Answer

Example 1: A study was conducted to know the average income of people in a village. The total number of person was 750. Out of these, 70 villagers selected and their average income was recorded. So, in this example:
(i) Population is the number of total villagers which is equal to 750.
(ii) Sample is the 70 villagers whose average income was recorded.
(iii) Variable under study is the income of the villagers

Example 2: In order to study the to record the level of sugar in the blood, blood sample of 1000 people was taken from 10,000 people. So, in this example
(i) Population is the total number of people i.e., 10,000.
(ii) Sample is the 1000 people.
(iii) Variable is the sugar level.

Q4. Which of the following methods give better results and why?
(a) Census
(b) Sample

Answer

Sample Method gives better results than the Census Method as:
→ Less time consuming: It requires a lot of time to conduct census as evry record have to obtain while sample can be done in lesser time. Economically feasible: The cost of approaching each individual unit for interrogation and collection of data is comparatively lower due to small size of sample.→ Accuracy- Although census method provides more accurate and reliable results as compared to the sample method but in the sample method the errors can be easily located and rectified in the sampling methods due to the smaller number of items.
→ Lesser Non-sampling Errors- The probability of Non-sampling Errors is also low as the sample size is smaller as compared to that of the Census Method.

Q5. Which of the following errors is more serious and why?
(a) Sampling error
(b) Non-Sampling error

Answer

Non-sampling errors are more serious than sampling errors because a sampling error can be minimised by taking a larger sample. It is difficult to minimise non-sampling error, even by taking a large sample as it use of faulty means of collection of data.

Q6. Suppose there are 10 students in your class. You want to select three out of them. How many samples are possible?

Answer

We have to use combinations to determine the number of samples which are possible. The formula for the number of such combination is

nCr = n!/(n-r)!r!

where n! = n(n-1)(n-2)(n-3)…..(3)(2)(1)

(Note: 0! = 1)

Therefore the answer will be $^{10}C_3 = (10 \times 9 \times 8)/(3 \times 2 \times 1) = 720/6 = 120$

Number of samples possible = 120

Q7. Discuss how you would use the lottery method to select 3 students out of 10 in your class?

Answer

Make ten paper slips with name of each student of equal size. Now, there are ten cards available. Mix them well. Now draw three slips at random without replacement one by one. By this method we can select three students.

Q8. Does the lottery method always give you a random sample? Explain.

Answer

Yes, the lottery method always gives a random sample if it is used in the proper manner without any bias. In a random sample, each individual unit has an equal chance of getting selected. Similarly, in a lottery method, each individual unit is selected at random from the population and thereby has equal opportunity of getting selected.

Q9. Explain the procedure of selecting a random sample of 3 students out of 10 in your class, by using random number tables.

Answer

For selecting a random sample of 3 students out of 10 by random number tables we consult one digit random numbers and we will skip random numbers greater than value 10 as it the largest serial number. We have other 9 one digit numbers. Thus, the 3 selected students out of 10 are with serial numbers 5,9,2.

Q10. Do samples provide better results than surveys? Give reasons for your answer.

Answer

Sample gives provide better results than surveys because

→ A sample can provide reasonably reliable and accurate information at a lower cost and shorter time.

→ As samples are smaller than population, more detailed information can be collected by

conducting intensive enquiries.

→ Sample need a smaller team of enumerators, it is easier to train them and supervise their work more effectively.