Frequently Asked Questions

1. Define population.

Answer:

In any statistical investigation the interest usually lies in studying the various characteristics relating to items or individuals belonging to a particular group. This group of individuals under study is known as the population.

2. Distinguish between finite population and infinite population.

Answer:

Finite population is one in which the number of units of information is definite and limited. For example: The college is a finite population and in this case the number of units of information that is students is definite and limited to five hundred. An infinite population refers to a population in which the number of units comprised therein cannot be definitely ascertained. An infinite population is theoretically impossible to observe all the elements. For example the population of fish in an ocean, the population of temperature at various points of the atmosphere, the production of wheat in India, etc forms an infinite population.

3. Distinguish between existing and experimental population.

Answer:

An existing population is the one which already exists with all its units in the form of concrete objects. The investigator has nothing to do for its creation except its discovery and location. An Experimental Population is one which is constituted through experiments being conducted by an investigator and is not found already in existence. This population consists of imaginary objects.

4. Distinguish between target population and sample population.

Answer:

The population about which information is wanted is known as the target population. The population to be sampled is known as a sample population. The population to which we want to generalize our findings is known as target population. The target population consists of a sample population and a sample population is more restricted than the target population. Due to some practical problems all units of the target population are not included in the selection of units for the sample population.

5. What are the different types of population and give at least two examples for each.

Answer:

Population is of the following four types:

- 1. Finite Population:
 - a) The population of students in an University
 - b) The population of books in a library

2. Infinite Population:

- a) The population of fish in an ocean
- b) The population of temperature at various points of the atmosphere
- 3. Existing population:

- a) A population of two wheelers in an institution
- b) A population of cancer patients in a hospital
- 4. Experimental population:
 - a) A record made of the number of heads and tails got upward by tossing a coin for a number of times say, 100, 200 or 500 times
 - b) A record made on the results by throwing the dice large number of times.

6. How do you measure the characteristics of the population?

Answer:

Statistical constants parameters are the measures used to study the characteristic of a population. It is a function of the population observations. Certain measures such as Population mean, median, mode or the like ones describe the characteristic of the population. For instance the statistical constants of the population mean (μ), the variance (σ^2), the skewness (β_1), kurtosis (β_2), correlation coefficient (ρ) etc. are the constants used in general to study the population characteristics.

7. Write a note on Sample Units?

Answer:

A population must be capable of division into what are called sampling unit or units. These units must cover the entire population and must not overlap in the sense that every unit in the population should belong to one and only one unit. These are the units on which the observations are made. Sometimes the appropriate unit is obvious as in the population of electric bulbs in which the unit is the single bulb.Sometime there is a choice of unit. In a study of people in a city the unit might be an individual person, the members of a family, or all persons living in the same street, block in a locality, livestock, etc. In an agricultural experiment the unit might be a field, a farm or an area of land whose and dimensions are at our disposal. A sampling unit should be unambiguous, specific, stable and appropriate to the enquiry.

8. Explain the relationship between a population and a sample.

Answer:

In Statistics, population is the aggregate of objects, animate or inanimate, under study in any statistical investigation." A sample is a representative portion of the population. In sampling theory the population means a larger group from which the samples are drawn. On the basis of sample study we can predict and generalize the behaviour of the population. The units which form the sample are the units drawn from the population. A sample is always a subset of the population.

9. Explain the nature of a sample population?

Answer:

The population to be sampled is known as a sample population. Sampled population is more restricted than the target population. Due to certain practical limitations and problems in dealing with certain units of the population; they are usually eliminated from the sample population. Judgement about extent to which these conclusions will also apply to the target population must depend on other sources of information. Any supplementary information that can be gathered about the nature of the differences between sampled and target population

like errors in estimation, precision in estimation etc may be helpful to generalize sample population results to the target population. It should be remembered that the conclusions drawn from the part of the population known as sample applied to the sample population.

10. When do we go for the selection of a sample from a population?

Answer:

In case of very large population or an infinite population it is impossible for anybody to investigate each and every unit of the population. In such cases we study only a representative portion of the population i.e., a sample and then generalise the results that we get for the part of the population to the entire mass of data. In fact selection of sample remains the only choice when the test involves the destruction of the item under study. If the scope of study is wide then we have to go for selection of samples from the population

11. What do you mean by a population size?

Answer:

The number of units in the mass which constitutes a population under study is known as size of the population. Population size may be finite or infinite. Population size is usually denoted by "N".

- 12. Identify the population in the following examples?
- a) The data for the research were obtained from a random sample of parents of children in the third grade in public and parochial schools in Yakima County, Washington
- b) The data reported in this paper were gathered from a probability sample of adults aged 18 and over residing in households in the 48 contiguous United states.

Answer:

- a) Population is all the parents of children in the third grade in public and parochial schools in Yakima County, Washington
- b) Population is all the adults aged 18 and over, residing in households in the 48 contiguous United states

13. Explain the concept of elementary units in a population.

Answer:

The attributes that are the object of study are referred to as characteristics and the units possessing them are called elementary units. The aggregate of which is generally described as population. Thus all the elementary units (on the basis of one characteristic or more) constitute population. For example: if we want to know the average marks in Statistics of 500 students then the population in this study will consists of 500 and the students are the elementary units. Or if we want to know the total population of India then all the people residing in India will constitute the Universe or Population and the people of India are the elementary units.

14. How do you distinguish between a population used in daily life and a Statistical population?

Answer:

In daily life, population means a number of people living in a particular geographical area whereas in Statistics population consists of all the units currently under study or all the number of observations connected with the study. Hence from a statistical point of view the population refers to the total of items or units in any field of enquiry about which information is desired and is also known as a Universe.

15. How can we draw information from any population? **Answer:**

We can draw information from the population either by census survey or by a sample survey.

In the process of studying the characteristics of the population if we enumerate each and every unit of the population and then draw conclusions about the population under consideration, such a technique of drawing information is known as census survey or complete enumeration survey.

But in case of very large population or an infinite population it is impossible for anybody to investigate each and every unit of the population. In such cases we study only a representative portion of the population called as a sample and then generalise the results that we get for the part of the population to the entire mass of data. In which case sampling techniques plays a major role in studying the characteristics of the population.