

Tutorial 1 (chapter 1)

Exercise 1.2:

Describe briefly each of the following terms:

- a. Primary data
The data collected by the investigator from the original source.
- b. Secondary data
If the required data had already been collected by some agencies or individuals and are now available in the published or unpublished records.
- c. Mail inquiry
The investigator prepares a questionnaire and sends it by mail to the respondents.
- d. Questionnaire/schedule
The questionnaire is a channel through which the needed information is elicited.
- e. Population
The population or universe is an aggregate of elements, about which the inference is to be made.
- f. Census
Collection of information on every unit in the population for the characteristics of interest. (Also known as enumeration).
- g. Element
An element is a unit for which information is sought.
- h. Sample
A subset of population selected from a frame to draw inferences about a population characteristic.
- i. Sampling unit
Nonoverlapping collections of elements of the population.
- j. Sampling frame
A list of all the units in the population to be sampled is termed.

Exercise 1.17:

Describe briefly the difference between with and without replacement sampling.

the units that selected one by one from the population, in WR the unit selected at any particular draw is replaced back to the population before selecting a unit at the next draw, but in the WOR is not replaced.

Exercise 1.18:

Consider a population consisting of 6 villages, the areas (in hectares) of which are given below:

Village:	A	B	C	D	E	F
Area:	760	343	657	550	480	935

- a. Enumerate all possible WR samples of size 3. Also, write the values of the study variable for the sampled units.
- b. List all the WOR samples of size 4 along with their area values.

N=6, n=3

a)

- The possible samples = $N^n = 6^3 = 216$
- All possible WR samples along with area values are listed below:

Villages in the sample	Area of the villages
AAA	760, 760, 760
AAB	760, 760, 343
ABA	760, 343, 760
BAA	343, 760, 760
AAC	760, 760, 657
.....	

- The possible samples = $C_n^N = C_4^6 = 15$
- All possible WR samples along with area values are listed below:

Sample	Villages in the sample	Area of the villages
1	ABCD	760,343,657,550
2	ABCE	760,343,657,480
3	ABCF	760,343,657,935
4	ABDE	760,343,550,480
5	ABDF	760,343,550,935
6	ABEF	760,343,480,935
7	ACDE	760,657,550,480
8	ACDF	760,657,550,935
9	ACEF	760,657,480,935
10	ADEF	760,550,480,935
11	BCDE	343,657,550,480
12	BCDF	343,657,550,935
13	BCEF	343,657,480,935
14	BDEF	343,550,480,935
15	CDEF	657,550,480,935