



Q.1. Give short answers of the following: (6x5=30)

- i. Correction factor
- ii. Disadvantages of Systematic Sampling
- iii. Advantages of sampling
- iv. Neyman allocation in Stratified Sampling
- v. Simple random sampling for proportions
- vi. Principle steps involved in sample survey

Answers the following questions. (3x10=30)

Q. No. 2. Show that the variance of the estimate of population total $\hat{y} = N\bar{y}$ from a simple random sample is $V(\hat{y}) = N^2(1 - f) \frac{S^2}{n}$.

Q. No. 3. If the terms in $\frac{1}{N_h}$ are ignored relative to unity, show that for estimated mean from stratified random sample of size n_h ,

$$V_{opt} \leq V_{prop} \leq V_{ran}$$

where the optimum allocation is for fixed n .

Q. No. 4. In a directory of 6 households on a street, the persons are listed as below:
M= male adult, F= female adult, m= male child, f=female child

1	2	3	4	5	6
M	M	M	M	M	M
F	F	F	F	F	F
f	f	m		m	f
m	m	f		m	m
f	f			f	

Compare the variances given by a systematic sample of 1 in 5 persons and a 20% simple random sample for estimating the proportion of male adults.