

(e) Describe the method of collection of official statistics in India.

4. Answer **any three** of the following questions : $10 \times 3 = 30$

(a) Write short notes on :

- (i) Origin and function of Central Statistical Organisations (CSO) and its publications (5)
- (ii) National Sample Survey Office (NSSO) (5)

(b) Explain the principal steps involved in the planning and execution of a sample survey.

(c) Explain ratio estimator and regression estimator in detail. When is regression estimator preferred over ratio estimator?

(d) Show that $V(\bar{y}_n)_{wor} \geq V(\bar{y}_{st})_{prop} \geq V(\bar{y}_{st})_N$ where the notations have their usual meaning. (5)

(e) Prove that in simple random sampling the sample mean is the best linear unbiased estimate (BLUE) of the population mean. What is margin of errors in the estimate?

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3 (Sem-3/CBCS) STA HC 2

2024

STATISTICS

(Honours Core)

Paper : STA-HC-3026

(Sampling and Indian Official Statistics)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions as directed : $1 \times 7 = 7$

(a) Probability of drawing an unit in each selection remain same in

- (i) SRSWOR
- (ii) SRSWR
- (iii) Both (i) and (ii)
- (iv) None of the above

(Choose the correct answer)

(b) With usual notations, the estimate of the variance of \bar{y}_{st} under proportional allocation is _____. (Fill in the blank)

(symbols have their usual meaning)

(c) Subsampling is also known as two-stage sampling. (Write True or False)

(d) The sample is regarded as a subset of

(i) Data

(ii) Set

(iii) Distribution

(iv) Population

(Choose the correct answer)

(e) Increasing the sample size has the following effect upon the sampling error.

(i) It increases the sampling error.

(ii) It reduces the sampling error.

(iii) No effect on the sampling error.

(iv) None of the above

(Choose the correct answer)

(f) Error in the survey other than sampling error is known as _____. (Fill in the blank)

(g) If the number of units in the population is limited, it is called finite population.

(State True or False)

2.03 Answer the following questions in brief : 2x4=8

(a) Mention two drawbacks of systematic sampling.

(b) When does one should go for stratification in sample surveys?

(c) How does sample survey differ from complete census?

(d) What are the basic principle of sample survey?

3. Answer any three : 5x3=15

(a) Obtain the variance of the estimate of population mean under SRSWOR.

(b) Explain the procedure of selecting a random sample of size 2 using cumulative total method of PPSWR with the help of an example.

(c) In what situations the cluster sampling is preferred? Comment on the efficiency of cluster sampling as compared to the simple random sampling.

(d) Mention the practical difficulties that may face in allocation of sample size in case of stratified random sampling.