

This question paper contains 2 pages

Unique Paper Code : 32371302 _ O C
Name of the Paper : Sample Survey and Indian Official Statistics
Name of the Course : B.Sc. (Hons.) Statistics under CBCS
Semester : III
Duration : 3 hours
Maximum Marks : 75 Marks

Instructions for Candidates

Attempt FOUR questions in all. [All questions carry equal marks.](#)

Q-1. From a list of 3000 names and addresses, a simple random sample of 250 names ~~showed~~ on investigation, 35 wrong addresses. Estimate the total number of the addresses needing correction in the list and obtain the standard error of this estimate.
From a list of 85500 farms in a district, a sample of 2300 farms were selected by SRSWOR. The data for the number of cattle for the sample were as follows:

$$\sum y_i = 37200 \quad \sum y_i^2 = 923400$$

From the available information estimate the total number of cattle in the district along with its standard error.

Q-2. If the relative standard deviation of y and x are equal then establish a relationship, to the first approximation, between relative variance and relative bias of ratio estimator (stating all results in details and assumptions wherever necessary).

Q-3. The daily milk yield (in litres) records of the first lactation of 21 Gir cows belonging to Government cattle farm, Gujarat is given below:

S. No.	1	2	3	4	5	6	7	8	9	10	11
Milk Yield	23	20	18	15	18	19	21	19	16	7	12
S. No.	12	13	14	15	16	17	18	19	20	21	_____
Milk Yield	17	9	22	15	16	24	18	12	22	20	_____

Explain the sampling scheme used if the sample is formed by every 3rd Gir cow in the sample to estimate the milk yield. Also find the sample mean and variance of the estimator chosen under the sampling scheme using the above data for a sample size 7.

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Q4 Explain stratified sampling with a suitable example. Under the condition that correlation between deviations from stratum means of a pair of items that are in the same systematic sample is greater than zero, comment on the precision of systematic and an equivalent stratified sample. Establishing all results required for comment.

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Q5. Explain the difference between cluster and subsampling sampling. (i) When clusters are formed randomly then obtain the efficiency of cluster sampling with respect to simple random sampling without replacement and comment (ii) When the finite correction factors at both the stages in two stage sampling with equal first stage units can be approximated by unity, then obtain variance of the sample mean. (In both the cases explain in details, all results/ proofs necessary)

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Q6. Which government of India organisation conducts socioeconomic surveys? Write a note on the organisation. What kind of data is collected by the organisation? What types of major errors are occurred in data collection in general? Which of the errors are more serious and why?