

Government (Auto.) college, Rourkela

SUBJECT-STATISTICS

PAPER- CORE-VI

SHORT TYPE QUESTIONS

Short Type Question:

1. Define Population and Sample?
2. What is the difference between a population and a sample in the context of statistics?
3. What is sampling errors?
4. What is sampling?
5. Complete enumeration is also known as _____.
6. Non-sampling errors are the result of _____.
7. In simple random sampling, each member of the population has an equal chance of being selected, with _____ or _____.
8. The number of possible samples of size n out of N population size in SRSWOR is equal to
9. The number of possible samples of size n out of N population size in SRSWR is equal to
10. Define Non-probability sampling ?
11. What is probability sampling?
12. What is the utility of standard error ?
13. What are the principles of sampling survey?
14. Calculate standard error of mean?
15. Define parameter and statistics.
16. What is sampling distribution?
17. What does the term "sampling size determination" refer to?
18. What is the purpose of a pilot study in sampling?
19. Define precision?
20. Derive a relationship between mean square error, sampling variance and bias.
21. If a larger units have more probability of their inclusion in the sample, the sampling is known as _____.
22. Define bias?
23. Give ratio estimator for estimating the population mean.
24. How does systematic sampling differ from stratified sampling ?
25. With the increase in sample size, then sampling error _____.
26. If all the observations in a set of observations are the same, then variance of set of values is _____.
27. **snowball sampling comes under the category of _____.**
28. **What is the probability of selecting sample by using SRSWOR _____.**
29. **What is the probability of selecting sample by using SRSWR _____.**
30. A selection procedure of sampling having no involvement of probability is known as _____
31. The number of possible samples of size 2 out of 5 population size in SRSWOR is equal to?
 - a. 10
 - b. 5
 - c. 12
 - d. 4
32. The number of possible samples of size 2 out of 5 population size in SRSWR is equal to
 - a. 28
 - b. 25
 - c. 10
 - d. 12
33. What is the purpose of sampling in statistics?
 - a) To ensure complete enumeration
 - b) To reduce the population size
 - c) To estimate population parameters based on a subset of the population
 - d) To eliminate non-sampling errors
34. The sampling fraction in usual notation is expressed as

- a. n/N
- b. N/n
- c. $1-n/N$
- d. None.

35. Which of the following sampling methods is a probability sampling technique?

- a) Convenience sampling
- b) Judgmental sampling
- c) Quota sampling
- d) Stratified random sampling

36. Simple random sampling without replacement means that:

- a) Every sample is put back into the population after selection
- b) Once a sample is selected, it is not put back into the population
- c) The sample size can be larger than the population size
- d) Samples are selected based on convenience.

37. Which of these are the steps in the sampling process_____?

- a. choosing the sampling frame
- b. defining the target population
- c. identifying and selecting the method of sample
- d. all of these

38. The distribution that is formed by all possible values of a statistics is known as:

- a. hypergeometric distribution
- b. binomial distribution
- c. sampling distribution
- d. normal distribution

39. Out of these, which is not a probability sampling?

- a. cluster sampling
- b. stratified sampling
- c. quota sampling
- d. simple random sampling

40. Out of the mentioned options, which is not a non-probability sampling?

- a. judgemental sampling
- b. Cluster sampling
- c. Extensive sampling
- d. Convenience sampling

41. The error of sampling is found only in

- a. quota survey
- b. any survey
- c. census survey
- d. sample survey

42. We find a non-sampling error in____

- a. sample survey
- b. census survey
- c. none of the above
- d. all of the above

43. A function of sample observations is known as

- a. Statistic
- b. Estimator
- c. Both (a)&(b)
- d. None

44. What is optimum allocation?

45. What are the methods of selection of sample?

46. What is the primary principle behind ratio estimation?

47. What is the role of the auxiliary variable in ratio estimation?

48. How does cluster sampling differ from simple random sampling in terms of selecting units?
49. How does the variability within clusters and between clusters affect the efficiency of cluster sampling?
50. What does the term "cluster" refer to in cluster sampling?
51. Show that the sample mean is an unbiased estimate of population mean in SRSWOR?
52. Explain the limitations of sampling
53. What is pilot survey?
54. Define Cost function?
55. Define Stratified random sampling?
56. What is the primary role of the Ministry of Statistics & Program Implementation (MoSPI) in India's statistical system?
57. 6. The National Sample Survey Office (NSSO) conducts periodic surveys to gather data on various socio-economic aspects of the population. True or False?
58. What is the National Statistical Commission's role in India's official statistical system?
59. The Government of India's principal publication containing data on the population is known as the _____.
60. Name one of the key publications by the Government of India that provides data on industrial production and economic activities.
61. 10. The Index of Industrial Production (IIP) is a significant economic indicator published by the _____.
62. The Gross Domestic Product (GDP) data for India is regularly published by the _____.
63. The Consumer Price Index (CPI) is used to measure _____ changes over time.
64. What is the primary focus of the National Sample Survey Office (NSSO)?
65. Annual Survey of Industries (ASI) provides data on _____.
66. Which government body oversees the implementation and monitoring of statistical standards in India?
67. The National Statistical Commission was established in the year _____.
68. The primary objective of the Ministry of Statistics & Program Implementation (MoSPI) is to promote the use of _____.
69. The Census in India is conducted once every _____ years.
70. What is one limitation of official statistics in India, particularly in rural areas?
71. The Census of India is conducted at regular intervals and provides data on _____ and _____.
72. Give ratio estimator for estimating the population mean.
73. Find an unbiased estimator of 2σ in SRSWR.
74. How does systematic sampling differ from stratified sampling ?
75. Show that in simple random sampling without replacement, the probability of selecting a specified unit of population at any given draw is equal to the probability of selecting it at the first draw
76. Distinguish between Census and Sampling.

Long-Type Questions:

1. What do you understand by stratification ? Find the variance of estimator of population mean based on stratified random sample. Hence obtain variances under proportional and Neyman allocation.
2. Explain systematic sampling and state the circumstances when it is appropriate. Suggest an estimate of population mean and derive its variance.
3. Define regression estimator for population mean in case of simple random sampling. Obtain an expression for variance of linear regression estimator, stating all the necessary assumptions.
4. Find the variance of the ratio estimator and show that ratio estimator is more efficient than simple mean \bar{y} if : $P > \frac{1}{2} \frac{c_x}{c_y}$ [8] Where c_x and c_y refer to the coefficient of variation of x and y respectively.
5. Define Two stage sampling . For a two stage sampling, find an estimator of population mean and also derive the variance.
6. What are non-sampling errors ? How do they differ from sampling errors ? Describe some main sources of non-sampling errors.
7. Distinguish between two stage and double sampling.
8. What are the different types of allocation in stratified random sampling ?
9. Mention various methods of drawing a random sample.
10. Distinguish between variance and mean square error of an estimator?
11. Show that in simple random sampling without replacement, the probability of selecting a specified unit of population at any given draw is equal to the probability of selecting it at the first draw. Find an unbiased estimator of σ^2 in SRSWR.
12. what are the main steps involved in sample survey? Discuss briefly.
13. . Define PPS sampling. Explain about cumulative total method.
14. Explain the important points for planning and organization of a sample survey.
15. Discuss briefly the basic principle of sample survey.
16. What are random sampling numbers? explain how these are used to select a simple random sample.
17. How does sampling without replacement differ from that with replacement? Which of them gives in the lower value of standard deviation of the sample mean.
18. Comparison variability of stratified random sampling with simple random sampling without replacement.
19. Define ratio estimator for a population mean of character Y giving its conditions. Write the expression for its bias and variance. Find the condition under which ratio estimator is more efficient than usual simple mean estimator.
20. Give the formula for estimates of mean and variance in case of systematic sampling.
21. What is circular systematic sampling.
22. What are the advantages and disadvantages of systematic sampling?
23. Give formula for mean and variance of stratified sampling.

24. Data mentioned two methods each of collecting primary and secondary data.
25. Discuss briefly about the statistical win MOSPI and its function.
26. Write shot on the following:
 - i. functions of cso.
 - ii. Determinants of quality statistics.
27. What is the background and objective of NSSO?
28. Find the variance of an estimator of population mean based on cluster sampling in terms of intraclass correlation coefficient between the elements of a cluster. Hence,proof that the increase in the size of the cluster usually leads to a increase in the sampling variance.
29. Justify the efficiency of cluster sampling increases as mean square within clustered increases.
30. What are the major sources of data on labour and employment in India? Cite the different publications related to labour statistics.
31. Write the name of the authority of publication, periodicity and coverage of “Agricultural Situation in India.
32. Which organization computes national income in India? Mention one other major activity performed by this organization.
33. Distinguish between the “production approach” and “income approach” of computing national income.
34. Write short notes on the following: (a) The annawari method and the crop-cutting experiments for estimating crop yield. (b) Registration of vital events.
35. . Write down the estimator of population total and standard error of estimator of population mean in linear systematic sampling.
36. What will be the relative position of efficiencies of systematic, stratified and random sampling when there is a linear trend in the population?