DF-3031
Second Year B. Sc. (Sem. III) Examination
March/April - 2016
Statistics : Paper - 303
(Sampling technique)

Time : Hours
[Total Marks : 50]

Sūkhāṁ / Instructions :
(1) Fill up strictly the details of sign as on your answer book.

Name of the Examination : SECOND YEAR B. SC. (SEM. III)
Name of the Subject : STATISTICS : PAPER - 303
Subject Code No. 3 0 3 1 Section No. (1, 2, ...), 3

Seat No.:

Student's Signature:

(2) Sārpa ṇa pravāṇa kṛṣṭuḥvaḥ ċa.
All questions are compulsory.

(3) Samākṣaṁ ānena labhunāśāyanapy ekārthasya vināṃti karavāni āpavamānā āpate.
Statistical and logarithmic tables will be supplied on request.

(4) Pravāravatit samastīkāt devamukteṇa upāyam vāḥ karate.
Use of non-programmable scientific calculator is allowed.

SECTION - A : Q. 1 to 10 Multiple choice questions : (1 mark)
SECTION - B : Q. 11 to 20 Multiple Choice Questions : (2 marks)
SECTION - C : Q. 21 to 25 Multiple choice questions : (4 mark)

O.M.R. Sheet भरवा अंकनी अध्यापक सूर्यनाथ आपेक्ष
O.M.R. Sheet द्वारा प्राप्त अध्यापक कारण है।
Important instructions to fill up O.M.R. Sheet are
given on back side of the provided O.M.R. Sheet.
1. Stratified sampling prefer to homogeneous and heterogeneous. Which of the following measures is used:
   (A) Complete sampling
   (B) Stratified sampling
   (C) Cluster sampling
   (D) Simple random sampling

Stratified sampling is not preferred when the population is
   (A) None of Homogeneous and Heterogeneous
   (B) Homogeneous
   (C) Heterogeneous
   (D) Homogeneous or Heterogeneous

2. Which of the following remedies can be used to remedy the problem of sampling:
   (A) Extraordinary measures
   (B) Extraordinary measures
   (C) Anomalous measures
   (D) waxalik measures

If the number of units constituting the population is fixed and limited
   (A) Hypothetical population
   (B) Finite population
   (C) In-finite population
   (D) Real population

3. If all the units of a population are surveyed, it is called
   (A) Both complete enumeration and Census
   (B) Sample survey
   (C) Complete enumeration
   (D) Census
4 The total numbers of possible samples of size \( n \) taken from a population of \( N \) units without replacement are:
(A) None of these
(B) \( N^n \)
(C) \( n^N \)
(D) \( \binom{N}{n} \)

5 Probability of selection of unit varies at each subsequent draw in
(A) None of SRSWOR and SRSWR
(B) SRSWOR
(C) SRSWR
(D) Both SRSWOR and SRSWR

6 Simple random sample can be selected with the help of
(A) All the these
(B) Random numbers table
(C) Chit Method
(D) Roulette Wheel

7 The error in a survey other than sampling error are called
(A) None of the these
(B) Formula error
(C) Planning error
(D) Non sampling error
8. An estimator can possess
(A) None of A Fixed Value and Any value
(B) A Fixed Value
(C) Any value
(D) Both A Fixed Value and Any value

9. Having the sample observations \( x_1, x_2, \ldots, x_n \) the formula for sample mean
(A) None of these
(B) \( \frac{n}{N} \sum x_i \)
(C) \( \sum x_i \)
(D) \( \frac{1}{n} \sum x_i \)

10. Which of the following advantage of systematic sampling you prove?
(A) All of these
(B) Easy selection of sample
(C) Economical
(D) Spread of sample over the whole population
11 60 विद्यार्थियों ओळख वर्गभागी 6 विद्यार्थियों मासिक ब्याज 2. मास नीचे प्रमाण मालम पडे छें।
132, 168, 88, 140, 92, 100
आ निर्देशने आपांचे वर्गभाग विद्यार्थियों कुल मासिक ब्याजांचे आंकदान करो।
Random sample of size 6 is taken from the class of 60 students. Their monthly expenditure in Rs. are as follows:
132, 168, 88, 140, 92, 100
Considering this sample estimate the total monthly expenditure of total students of the class.
(A) 7300
(B) 7000
(C) 7100
(D) 7200

12 नीचे नीचे माहिती आपांचे जुऱे प्र.प्र.शंके:

\[ N = 1000, \quad N - n = 900, \quad S^2 = 144 \]

Find the standard deviation of \( \tilde{X} \) from the following information:

\[ N = 1000, \quad N - n = 900, \quad S^2 = 144 \]

(A) 1168.44
(B) 1138.42
(C) 1148.42
(D) 1158.44

13 96 विद्यार्थियो पदवता वर्गमध्ये तेमना रोल नंबर 1 थी 96 छे। जे तेमांची 10 विद्यार्थियों मासिक ब्याजांचे निर्देश देवांना नक्की करावासाठी ते व्यवस्थित निर्देशन पदवतीने उपयोग करू शकत निर्देश जपावू।

In a class of 96 students with roll numbers 1 to 96. It is desired to take sample of 10 students, using systematic sampling method the possible sample may be

(A) 1, 11, 21, 31, 41, 51, 61, 71, 81, 91
(B) 1, 10, 19, 28, 37, 46, 55, 64, 73, 81
(C) 1, 9, 17, 26, 35, 44, 53, 62, 71, 80
(D) 1, 11, 21, 31, 41, 51, 61, 71, 80, 91
The population observations are 1, 2, 4, 5. The possible random sample of size two without replacement can be:

(A) (1,2), (1,4), (1,5), (2,4), (2,5), (4,5)
(B) (1,3), (2,4), (4,5), (5,1), (1,2), (2,5)
(C) (1,2), (1,4), (1,5), (5,1), (2,4), (4,5)
(D) (1,2), (2,4), (4,5), (5,1)

The population observations are 10, 18, 20, 25, 32. Select a random sample of size two without replacement from the population. Find expected value of sample mean:

(A) 22
(B) 19
(C) 20
(D) 21

The possible random samples of size two without replacement are:

(11, 15), (12, 11), (15, 12), (11, 14), (14, 15), (14, 12)

Then the population mean is

(A) 15
(B) 12
(C) 13
(D) 14
17. A random sample of 10 is selected from a population of 1000 units. The population has 10 units. If the total number of samples with replacement are 1000 selected from the population has 10 units. If the sample of 10 units is selected, then find the value of n.

(A) 4  
(B) 1  
(C) 2  
(D) 3

18. A random sample from a population of 1000 is selected from the population of 4096 units. If the total number of samples are 4096 selected from the finite population. If the sample of size four is selected with replacement, then how many units are in the population?

(A) 11  
(B) 7  
(C) 8  
(D) 10

19. A random sample of 5 is drawn from the population of observations 2, 3, 4, 5, 11. How many total numbers of the samples of size two without replacement from the population having observations 2, 3, 4, 5, 11?

(A) 12  
(B) 9  
(C) 10  
(D) 11

20. A random sample of 5 is drawn from the population of 25 units. How many samples are drawn with replacement of size 5 from the finite population of having 25 units?

(A) 25  
(B) \( \binom{25}{5} \)  
(C) 25^5  
(D) 25^2
21. A sample of 430 students has a mean of 19. Assume a standard deviation of 86.6. What margin of error and 95% confidence coefficient by complete enumeration of 430 units. It was found the mean was 19 and variance was 86.6
(A) 440
(B) 410
(C) 420
(D) 425

22. 100 students in a school the mean of 4,60,000 is 10% of the standard deviation of the population. The mean of 4,60,000 is for the population having 100 units. Then find the sample variance if the simple random sample is taken 10% from the population.
(A) 66
(B) 36
(C) 46
(D) 56

23. 500 students in a school the mean of 4,60,000 is 0.4. What is the variance of the population having 50 students? If the variance of weight of selected students is 50 then how many sample of students is selected?
(A) 100
(B) 10
(C) 20
(D) 50

24. A school of 3 students has 5. The mean is 900, 3 is 4. Find the mean for the population having
3N = 5N = 900, y = 4y = 153
(A) 47.22
(B) 44.22
(C) 45.22
(D) 46.22

25. 8502 children in the school are 170 children from 21 schools. What is the standard error of the total children from that area?
(A) 243.01
(B) 200.01
(C) 212.64
(D) 223.01