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

Time : Hours] 
[Total Marks : 50

Instructions :
(1) Fill up strictly the details of signs on your answer book.
Name of the Examination :
SECOND YEAR B. SC. (SEM. III)
Name of the Subject :
STATISTICS : PAPER - 303
Subject Code No. 3031 Section No. (1, 2,.....) 3

(2) All questions are compulsory.

(3) Statistical and logarithmic tables will be supplied on request.

(4) 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 भरूने अंगेरी अभयारणी सूचनांमध्ये आपले
 O.M.R. Sheet ने पाचण घसरून आहे.
Important instructions to fill up O.M.R. Sheet are
given on back side of the provided O.M.R. Sheet.
1. \( x_1, x_2, \ldots, x_n \) निर्देश अवलोकनो मात्र निर्देश मध्यकालु सुच्च

Having the sample observations \( x_1, x_2, \ldots, x_n \) the formula for sample mean

(A) \( \frac{1}{n} \sum x_i \)

(B) None of these

(C) \( \frac{n}{N} \sum x_i \)

(D) \( n \sum x_i \)

2. अविश्वसनीय निर्देश पदल्ल नोम्नामानी कई परिस्थिति मात्र धारकांश छै?

(A) निर्देशीय आधार संख्येकोमां छवाको दौए

(B) बक्का छ

(C) निर्देशीय परंपरात सरण

(D) आलिङ्ग रीत

Which of the following advantage of systematic sampling you prove?

(A) Spread of sample over the whole population

(B) All of these

(C) Easy selection of sample

(D) Economical

3. सत्रित्र निर्देश पदल्ल उपभोक्ता नस्ली जमारे सङ्गठ

(A) समांग सोए अथवा विषमांग बनने

(B) समांग सोए अथवा विषमांग मांगी एक पत्र नस्ली.

(C) समांग सोए

(D) विषमांग

Stratified sampling is not preferred when the population is

(A) Homogeneous or Heterogeneous

(B) None of Homogeneous and Heterogeneous

(C) Homogeneous

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

5. If all the units of a population are surveyed, it is called
   (A) Census
   (B) Both Complete enumeration and Census
   (C) Sample survey
   (D) Complete enumeration

6. The total numbers of possible samples of size n taken from a population of N units without replacement are:
   (A) $^N\text{C}_n$
   (B) None of these
   (C) $N^n$
   (D) $n^N$

7. Probability of selection of unit varies at each subsequent draw in
   (A) Both SRSWOR and SRSWR
   (B) None of SRSWOR and SRSWR
   (C) SRSWOR
   (D) SRSWR
8. Simple random sample can be selected with the help of
(A) Roulette Wheel
(B) All the these
(C) Random numbers table
(D) Chit Method

9. The error in a survey other than sampling error are called
(A) Non sampling error
(B) None of the these
(C) Formula error
(D) Planning error

10. An estimator can possess
(A) Both A Fixed Value and Any value
(B) None of A Fixed Value and Any value
(C) A Fixed Value
(D) Any value
The population observations are 1, 2, 4, 5. The possible random sample of size two without replacement can be -

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

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

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) 14
(B) 15
(C) 12
(D) 13
14 अंक समस्तां 10 अंकमों छै. तेमाछी n छटनां पूर्ववाचल सहित भागाच शब्द निरस्त्रांनी कुल संख्या 1000 अंके छ तो n-संख्या शोधो.

If the total numbers of samples with replacement are 1000 selected from the population has 10 units. If the sample of n units is selected, then find the value of n.

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

15 अंक शान्त समस्तांमध्ये पूर्ववाचल सहित चार अंकमों शब्द कुल निरस्त्रांनी कुल संख्या 4096 अंके छ. तो ते समस्तां कुल शब्द अंकमों छोडी?

If the total numbers 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) 10
(B) 11
(C) 7
(D) 8

16 अंक समस्तांमध्ये अवाळकं 2,3,4,5,11 छे. तेमांची पूर्ववाचल सहित बर्थ्या अंकमांना शब्द निरस्त्र बन्धव शाक्य?

How many total numbers of the samples of size two without replacement from the population having observations 2,3,4,5,11?

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

17 25 अंकमांची शान्त समस्तांमध्ये 5 अंकमांना पूर्ववाचल सहित शब्द बन्धव निरस्त्र बन्धव शाक्य?

How many samples are drawn with replacement of size 5 from the finite population of having 25 units?

(A) 25²
(B) 25
(C) 25C_5
(D) 25^5

DF-3031_C ] 6 [Contd...
60 students of a class of 60 students are randomly selected for the 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) 7200
(B) 7300
(C) 7000
(D) 7100

Find the standard deviation of the following information:

N = 1000, N - n = 900, S^2 = 144

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

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

(A) 1, 11, 21, 31, 41, 51, 61, 71, 80, 91
(B) 1, 11, 21, 31, 41, 51, 61, 71, 81, 91
(C) 1, 10, 19, 28, 37, 46, 55, 64, 73, 81
(D) 1, 9, 17, 26, 35, 44, 53, 62, 71, 80
21 A random sample of 170 children is taken from the 8502 children from an area. There are 21 children having deficiency of vitamins. Then find the standard error of the total children of that area.

(A) 223.01  
(B) 243.01  
(C) 200.01  
(D) 212.64

22 How many units must be taken to estimate the population mean with 10% 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) 425  
(B) 440  
(C) 410  
(D) 420

23 The \( V(\bar{X}) = 4.60,000 \) for the population having 100 units. Then find the sample variance if the simple random sample is taken 10% from the population.

(A) 56  
(B) 66  
(C) 36  
(D) 46

24 The estimator of weight of some selected sample mean is 0.4 from the 500 students. If the variance of weight of selected students is 50 then how many sample of size of the students is selected?

(A) 50  
(B) 100  
(C) 10  
(D) 20

25 Find \( \bar{y}_{sr} \) for the population having

\[ 3N_1 = 5N_2 = 900, \bar{y}_1 = 4y_2 = 153 \]

(A) 46.22  
(B) 47.22  
(C) 44.22  
(D) 45.22