

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2015-2016

स्नातक कला कार्यक्रम (बी०ए०)

Bachelor of Art Programme (B.A.)

Subject : Statistics

कोर्स शीर्षक : Statistical Methods

Subject Code : UGSTAT -01

अधिकतम अंक – 30

Maximum Marks -30

नोट : दीर्घ उत्तरीय प्रश्न । प्रश्नों के अपने उत्तर 800 से 1000 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं ।

Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Define Geometric mean . Also Define the additive property of Geometric mean . 6
2. Define Standard Deviation . Also Discuss the effect of Change of origin and scale on it. 6
3. Discuss Various methods of measurements of data . 6

Section ' B '

4. Write Short not on
(a) Histogram (b) Pictogram 3
(c) Pie-Chart
5. Define O gives and its types. 3
6. Define 3
(a) Percentile
(b) Deeile
(c) Quartiles

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Bachelor of Art Programme (B.A.)

Subject : Statistics

कोर्स शीर्षक : Probability & Distribution

Subject Code : UGSTAT -02

अधिकतम अंक – 30

Maximum Marks -30

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Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Each of n urns contains four white and six black balls, while another urn contains five white and five black balls. An urn is chosen at random from these n urns and two balls are drawn from it both being black. The probability that five white and three black balls remain in the chosen urn is $1/7$. Find the value of n .
2. The probability mass functions of a random variable X is given by

$$b(x) = P(x = x) \begin{cases} \binom{x+4}{x} \left(\frac{1}{3}\right)^5 \left(\frac{2}{3}\right)^x & \text{if } x = 0, 1, 2, \dots \\ 0, & \text{otherwise} \end{cases}$$

Obtain (i) $E(x)$ (ii) Moment generating function of X .

3. The probability density function of a random variable X is given by

$$f(x) = \frac{1}{4\sqrt{\pi}} e^{-\frac{(x-10)^2}{32}}, \quad -\infty < x < \infty$$

Obtain (i) $E(x)$ (ii) $E(x^2)$ and $E(x^4)$

Section—B

Maximum Marks : 12

अधिकतम अंक : 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. Answer all questions. All questions are compulsory.

- 4- For two events A and B , show that ,
 $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
5. Define conditional probability and give an example .

6. The probability mass function of a random variable X is given by

$$b(x) = P(x=x) = \begin{cases} \frac{1}{5} \left(\frac{4}{5}\right)^x & \text{if } x=0,1,2,\dots \\ 0, & \text{otherwise} \end{cases}$$

Show that $P(x > 10 / x > 3) = P(x > 7)$

7. The p.d.f. of a random variable X is given by

$$\begin{cases} \frac{1}{\beta} e^{-x/\beta} & \text{if } x > 0, \beta > 0 \\ 0, & \text{otherwise} \end{cases}$$

Obtain the moment generating function of X.

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स्नातक कला कार्यक्रम (बी०ए०)

Bachelor of Art Programme (B.A.)

Subject : Statistics

कोर्स शीर्षक : Correlation & Regression-

Subject Code : UGSTAT -03

अधिकतम अंक – 30

Maximum Marks -30

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Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

1. Discuss about the effect of change of origin and scale on correlation coefficient.
2. Define non parametric tests. Also discuss about the Mann – whitney U-test.
3. Discuss about the all properties of a good estimator.

Section—B

Maximum Marks : 12

अधिकतम अंक : 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. Answer all questions. All questions are compulsory.

- 4- Write notes on
 - a) Goodness of fit .
 - b) Sign test and Run test.
5. Writes short notes on
 - a) contingency table
 - b) Yates correction.
6. Define
 - a) Critical region and Acceptance region.
 - b) MP & UMP test.

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स्नातक कला कार्यक्रम (बी०ए०)

Bachelor of Art Programme (B.A.)

Subject : Statistics

कोर्स शीर्षक : Sampling theory &

Deign of Experiment

Subject Code : UGSTAT -04

अधिकतम अंक – 30

Maximum Marks -30

Maximum Marks -30

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Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Discuss about the Non Sampling Errors .
2. Define Linear models. Also give the complete lay out of One way Classified data Also give its ANOVA.
3. Discuss about the
 - (a) Efficiency of RBD
 - (b) Efficiency of LSD.

Section 'B'

4. Define Basic Principle of Resign of Experiments.
5. Distinguish the Difference Between multistage Sampling and Two phase Sampling.
6. Discuss about the Measures of Sampling Errors.

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स्नातक कला कार्यक्रम (बी०ए०)

Bachelor of Art Programme (B.A.)

Subject : Statistics
कोर्स शीर्षक : Numerical Method
& Basic Computers

Subject Code : UGSTAT -05
अधिकतम अंक – 30
Maximum Marks -30

नोट : दीर्घ उत्तरीय प्रश्न । प्रश्नों के अपने उत्तर 800 से 1000 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं ।

Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory

Section 'A'

अधिकतम अंक 18

Maximum Marks -18

1. What do you mean by divided differences? State and prove their properties. Also derive their relationship with forward differences.
2. What is numerical differentiation ? Derive the relationship between differential operator (D) and Shift operator (E).
3. Write a defiled Comparative note on various low-level and high-level programmly languages.

Section 'B'

अधिकतम अंक 12

Maximum Marks -12

4. Define inverse interpolation with example.
5. Derive Simpson's One- third formula for numerical integration.
6. Differentiate between algorithm and flow-Chart Also, write algorithm and flow -Chart for finding median of green data.

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अधिन्यास (Assignment)

2015-2016

स्नातक कला कार्यक्रम (बी०ए०)

Bachelor of Art Programme (B.A.)

Subject : Statistics

कोर्स शीर्षक : Applied Statistic

Subject Code : UGSTAT -06

अधिकतम अंक – 30

Maximum Marks -30

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Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions.

All questions are compulsory

Section 'A'

अधिकतम अंक 18

Maximum Marks -18

1. Write down the all criteria of a good index numbers.
2. Discuss about the methods of link relatives.
3. Discuss about the Double Sampling plan.

Section 'B'

अधिकतम अंक 12

Maximum Marks -12

4. Write notes on
(a) GRR and (b) NRR
5. Deter Ideal Index number. Why it is Ideal.
6. Construct the Control Charts for X and R Charts.

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Bachelor of Art Programme (B.A.)

Subject : Statistics

कोर्स शीर्षक : Operation Research

Subject Code : UGSTAT -07

अधिकतम अंक – 30

Maximum Marks -30

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Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory

Section 'A'

अधिकतम अंक 18

Maximum Marks -18

1. Write a detailed not on classification of models used in operations research.
2. What is a game problem? How do we solve there problems using LPP technique ? Give example.
3. What is a transportation problem? How could it be Considered as LPP? Also, show that number of basic variables in a transportation problem of order $m \times n$, are at the most $m+n-1$

Section 'B'

अधिकतम अंक 12

Maximum Marks -12

4. What is a dual problem? How do we get a dual of given primal ?
5. State and prove reduction theorem for assignment problems.
6. Soles the following LPP graphically (give all steps) .
Max . $Z = 3x + 2y$, subject to $x-y \leq 1$, $x+y \geq 3$ and $x, y \geq 0$.

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2015-2016

स्नातक कला कार्यक्रम (बी०ए०)

Bachelor of Art Programme (B.A.)

Subject : Statistics
कोर्स शीर्षक : Advance Statistical Inference

Subject Code : UGSTAT -08
अधिकतम अंक – 30

Maximum Marks -30

नोट : दीर्घ उत्तरीय प्रश्न। प्रश्नों के अपने उत्तर 800 से 1000 शब्दों में लिखें। सभी प्रश्न अनिवार्य हैं।
Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory

Section 'A'

अधिकतम अंक 18
Maximum Marks -18

1. Let $X \sim P_{N_1, N_2}$, Where 6

$$P_{N_1, N_2}(x) = \begin{cases} \frac{1}{N_2 - N_1} & X = N_1 + 1, N_1 + 2, \dots, N_2 \\ 0 & \text{Otherwise} \end{cases}$$

and N_1, N_2 ($N_1 < N_2$) are integers.

Obtain sufficient Statistic when N_1 and N_2 are both unknown.

2. Let (X_1, X_2, \dots, X_n) be a random Sample of size n from the Poisson Distribution with parameter θ . Obtain an unbiased estimator of $e^{-5\theta}$. 6
3. Let (X_1, X_2, \dots, X_n) be a random Sample of size n from the Distribution having p.d.f. given by 6

$$f(x; \theta) = \begin{cases} \frac{1}{\theta} e^{-x/\theta} & x > 0, \theta > 0 \\ 0 & \text{otherwise} \end{cases}$$

Obtain Uniformly Most Powerful test for testing $H_0: \theta = 1$ against $H_1: \theta > 1$.
Also obtain expression of power function

Section 'B'

अधिकतम अंक 12
Maximum Marks -12

4. With the help of an example, show that the maximum likelihood estimate is not unique. 3
5. State Cramer Rao Inequality 3
6. Define Consistent estimator. 3
7. Define Most Powerful Test. 3

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स्नातक कला कार्यक्रम (बी०ए०)

Bachelor of Art Programme (B.A.)

Subject : Statistics

कोर्स शीर्षक : Official statistic

Subject Code : UGSTAT -12

अधिकतम अंक – 30

Maximum Marks -30

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Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory

Section 'A'

अधिकतम अंक 18

Maximum Marks -18

1. Discuss about the various optical agencies responsible for data Collection. 6
2. Discuss about the methods of Collection of data. 6
3. Discuss about the use of Statistics in day to day life. 6

Section 'B'

अधिकतम अंक 12

Maximum Marks -12

4. Describe , How Statistics is usefull in the field of Agriculture. 4
5. Write Some. Limitations of the data Collection methods. 4
6. What is Census. 4