HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)
(Affiliated to Osmania University)
Nallakunta, Hyderabad-44

DEPARTMENT OF STATISTICS
B.Sc. STATISTICS

(BOS – MEETING ON 24-12-2020 at 03 PM)

SYLLABUS, MODEL PAPER
PANEL OF EXAMINERS etc...

For the Academic Year

2020-2021 & 2021 - 2022

VG- I, II

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)

(Affiliated to Osmania University)

Nallakunta, Hyderabad-44

BOARD OF STUDIES

DEPARTMENT OF STATISTICS

(B.Sc. STATISTICS)

1st & 2nd YEAR

2020-2021 & 2021 - 2022

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)
(Affiliated to Osmania University)
Nallakunta, Hyderabad-44

DEPARTMENT OF STATISTICS

B.Sc. STATISTICS

SCHEME OF INSTRUCTION
AND
EXAMINATION
(THEORY AND PRACTICALS)

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)
BOARD OF STUDIES
DEPARTMENT OF STATISTICS
(M.Sc. APPLIED STATISTICS & B.Sc. STATISTICS)

Chairperson

Swarnalatha

Head-Department of Statistics for M.Sc.

Dr. M.Raghunadha Acharya
Hindi Mahavidyalaya
Nallakunta, Hyderabad

Head-Department of Statistics for B.Sc.

Mrs. P.Rama Devi
Hindi Mahavidyalaya
Nallakunta, Hyderabad

University Nominee

Dr. G.Jayasree
Head-Department of Statistics
Department of Statistics
Osmania University, Hyderabad

Members of BOS

1. Dr.N.Ch.Bhatracharyulu
   Department of Statistics,
   Osmania University, Hyderabad
2. Dr. B.G.Manjunadh,
   School of Mathematics & Statistics,
   University of Hyderabad.
3. A.HariKrishna
   Working for National textiles
4. Ranjitha Chul
   Lecturer
   Department of Statistics
   Hindi Mahavidyalaya, Hyderabad
5. CH.Anusha
   Lecturer
   Department of Statistics
   Hindi Mahavidyalaya, Hyderabad

24/12/20

Chairperson **University Nominee** **Members** **Principal**

1.
2.
3. G. Jayasree.

HEAD
Department of Statistics,
University College of Science
Osmania University, Hyderabad-7.

HEAD
Department of Statistics,
University College of Science
Osmania University, Hyderabad-7.

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)

DEPARTMENT OF STATISTICS

(B.Sc. STATISTICS)

COMPOSITION: DEPARTMENT OF STATISTICS

1. Head of the department concerned (Chairman)
   Smt. P. Rama Devi, Department of Statistics

2. One expert to be nominated by the vice-chancellor from a panel of six recommended by the College Principal.

   Dr. G. Jayashree-HOD, Department of Statistics,
   Osmania University, Hyderabad.

3. Two experts in the subject to be nominated by the Academic Council.

   1. Dr.N.Ch.Bhatracharyulu-Department of Statistics, Osmania University.

   2. Dr. B.G.Manjunadh-Asst.Professor,School of Mathematics & Statistics, University of Hyderabad.

4. One industry expert in the subject from outside the college to be nominated by the Academic Council.

   a. A.Hari Krishna working for National textiles

P. Swarnalatha
Chairperson

University Nominee

G. Jayashree.
HEAD
Department of Statistics,
University College of Science
Osmania University, Hyderabad-7.

Members

1.
2. G. Jayashree.
3.

24/12/20
Principal

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)

BOARD OF STUDIES

DEPARTMENT OF STATISTICS

(B.SC. STATISTICS)

AGENDA OF THE MEETING

1.1. Welcome address by the chair.

1.2. Details of choice base credit system.

1.3. Discussion on Common Core Syllabus of Semesters I, II, III & IV.

1.4. Marks allotted for Internal and End Semester exams.

1.5. Discussion on Semester Exam Model Paper & Internal Exam Model Paper of Semesters I, II, III & IV.

1.6. Discussion on Practical Exam Model Paper of Semesters I, II, III & IV.

1.7. Panel of Examiners

1.8. Any other matter

1.9. Vote of Thanks

24/12/20

Chairperson

Swarnalatha

University Nominee

Members

1.

2.

3.

Principal

HEAD
Department of Statistics,
University College of Science
Osmania University, Hyderabad-7.

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)

BOARD OF STUDIES

DEPARTMENT OF STATISTICS

ACADEMIC YEAR – 2020-2021

MINUTES OF BOARD OF STUDIES MEETING

BOS meeting of the Department of STATISTICS was held on 24th December 2020 at 3:00 PM.

The following members were present

Swarnalatha.	-	Chairperson
Dr.M.Raghunadha Acharya	-	HOD (M.Sc)
Smt. P. Rama Devi	-	HOD (B.Sc)
Dr. G. Jayasree	-	University Nominee
Dr.N.CH.Bhatracharyulu	-	Member
Dr. B.G.Manjunadh	-	Member
A.HariKrishna	-	Member

1.1 Welcome address by the chair

The chair welcomed the University Nominee, Ex-officio member BOS, O.U Department of STATISTICS and Members of B.O.S.

1.2 Details of choice based credit system.

Members were informed that TSCHE has referred that from the academic year 2016-17 autonomous institutions have to follow CBCS i.e. From the Academic Year 2016-17 Osmania University has instructed all the Degree colleges including Autonomous Degree colleges to follow CBCS under which after passing the exam, student will get the Grade in the Final Result. 4 Credits are given for theory paper and 1credits are given for practical in each semester.

24/12/20

Chairpeson E. Swarnalatha

University Nominee G. Jayasree

HEAD
Department of Statistics,
University College of Science
Osmania University, Hyderabad-7.

Members
1.
2.
3.

Principal

1.3 Discussion and Distribution of Common Core Syllabus.

i. Members were informed by the chair that Department of STATISTICS, Hindi Mahavidyalaya is following common core syllabus prescribed by Osmania University.

ii. We are adopting Osmania University same syllabus of each semester as it is without any changes.

Syllabus copy for 1st and 2nd Years - I, II, III & IV semesters is enclosed.
Syllabus was approved by the Members of BOS.

1.4 Marks allotted for Internal and End Semester exams (I & II).

1. Internal assessment is of 15 marks. In each semester two internal assessments of 15 Marks will be conducted and an average of both the internal assessments will be added in the marks of theory exam and one assignment is of 5 Marks, Project 5 marks, Seminar and attendance 5 Marks - total of 30 Marks.
2. Theory Question paper is of 70 marks.
3. Total allotted marks are 100.

The distribution of marks was approved by the Members of BOS.

1.5 Discussion on Pattern and Model Paper of Semester exam and Model Paper of Internal Exam

1. Each Semester Two Internal exams will be conducted for 15 marks. The internal assessment will have one section.

   Section – A 30 Multiple choice questions each carries ½ marks
   (30x ½ = 15M),

Average of marks of these two internal exams will be taken.

2. Semester exam will be conducted as per the Almanac which will be provided by the exam branch. Internal exam duration will be 30Mnts and Semester exam duration will be of 2½ hrs.

3. Model Question paper for Semesters I, II, III and Semester IV was discussed. Theory paper for each Semester will have 2 sections.

   (i) Section A contains 8 short Questions (2 questions from each unit). Students must answer 6 questions. Each Question carries 3 Marks (6X3=18 Marks)

   (ii) Section B contains 4 Essay type Questions with internal choice. Each Question carries 13 Marks (4X13=52 Marks)

- Pattern of Model Theory Question Papers for Semesters I, II, III & IV are approved.

Chairperson	University Nominee	Members	Principal
E. Swarnalatha		1. 2. 3.	24/12/20

HEAD
Department of Statistics,
University College of Science
Osmania University, Hyderabad-7.

1.6 Discussion on Practical Exam Model paper.

- It is decided that the practical examinations held for B.Sc. I and II year (Semesters I, II, III & IV) will have the pattern of 25 marks (20 for practicals + 5 for record) and the credits will be 1. The duration of the exam will be 2 hrs.
- The practical model paper of Semesters I, II, III and IV was approved by the members of BOS.

1.7 Panel of Examiners

The panel of examiners was approved by the members.

- List is enclosed

1.8 Any other matter.

1. The syllabus for the batch (2020-2021) is also approved by the members.
2. It is resolved to follow from 2020-2021 batch that the practical examination held for BSc. 1st and 2nd Year will have pattern of 25 marks scheme and 1 credit with 2 hrs duration.

1.9 Vote of Thanks

Meeting concluded with the Vote of Thanks by Swarnalatha.

Chairperson	University Nominee	Members	Principal
E-Swarnalatha	eJ-Jayasree.	1.	24/12/20
	HEAD Department of Statistics, University College of Science Osmania University, Hyderabad-7.	2. Rajesh eJ-Jayasree.	
		3.	

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)
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Nallakunta, Hyderabad-44

DEPARTMENT OF STATISTICS

B.Sc. STATISTICS

First Year
With effect from batch of students admitted
from the Academic Year
2020-2021
under CBCS semester system

Academic Year 2020-21

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

(AUTONOMOUS)

B.Sc STATISTICS- I[st] Year Syllabus

Semester – I

[4 HPW :: 4 Credits :: 100 Marks (External:70, Internal:30)]

Unit-I

Descriptive Statistics: Concept of primary and secondary data, Classification of data, Measures of central tendency (Arithmetic mean, median, mode, geometric mean and harmonic mean) with simple applications, Absolute and relative measures of dispersion (range, quartile deviation, mean deviation, standard deviation and variance) with simple applications. Importance of moments, central and non-central moments, their inter-relationships, Sheppard's correction for moments for grouped data, Measures of skewness based on quartiles and moments, kurtosis based on moments with real life examples.

Unit-II

Probability: Basic concepts of probability, deterministic and random experiments, trial, outcome, sample space, event, operations of events, mutually exclusive and exhaustive events, equally likely and favorable events with examples, Mathematical, Statistical and Axiomatic definitions of probability, their merits and demerits. Properties of probability based on axiomatic definition. Conditional probability and independence of events, Addition and multiplication theorems for 'n' events, Boole's inequality and Bayes' theorem, Problems on probability using counting methods and theorems.

Unit-III

Random Variables: Definition of random variable, discrete and continuous random variables, functions of random variables, probability mass function and probability density function with illustrations. Distribution function and its properties, Transformation of onedimensional random variable (simple 1-1 functions only). Notion of bivariate random variable, bivariate distribution, statements of its properties, Joint, marginal and conditional distributions, Independence of random variables.

Unit-IV

Mathematical Expectation: Mathematical expectation of a function of a random variable, Raw and central moments, covariance using mathematical expectation with examples, Addition and multiplication theorems of expectation. Chebyshev's and Cauchy-Schwartz's inequalities and their applications. Definitions of moment generating function (m.g.f), characteristic function (c.f), cumulant generating function (c.g.f), probability generating function (p.g.f) and statements of their properties with applications.

Reference books: 1. Fundamentals of Statistics, (Vol-I) - Goon A M, Gupta M K, Das Gupta B, The World Press (Pvt) Ltd., Kolkata. 2. Fundamentals of Mathematical Statistics - V. K. Kapoor and S. C. Gupta, Sultan Chand & Sons, New Delhi.

Additional References: 1. Sanjay Arora and Bansilal: New Mathematical Statistics, Satya Prakashan , New Delhi. 2. William Feller: Introduction to Probability theory and its applications, (Vol-I), Wiley. 3. M. Jagan Mohan Rao and Papa Rao: A Text book of Statistics (Paper-I). 4. Hogg,Tanis, Rao: Probability and Statistical Inference, (7th edition), Pearson. 5. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC, PHI. 6. Gerald Keller: Applied Statistics with Microsoft Excel, Duxbury, Thomson Learning. 7. Levine, Stephen, Krehbiel, Berenson: Statistics for Managers using Microsoft Excel (4th edition), Pearson Publication.

Academic Year 2020-21

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

(AUTONOMOUS)

B.Sc STATISTICS- I[st] Year Syllabus

w.e.f: Academic Year: 2020-2021 (With Mathematics Combination)

Semester – I

Practical-1 Descriptive Statistics and Probability)

3 HPW: 1 Credit

Max Marks : 25 Marks

Part - 1 (Using calculator)

1. Graphical presentation of data (Histogram, frequency polygon, Ogives).
2. Diagrammatic presentation of data (Bar and Pie).
3. Computation of non-central and central moments – Sheppard's corrections for grouped data.
4. Computation of coefficients of Skewness and Kurtosis – Karl Pearson's, Bowley's, $\beta 1$ and $\beta 2$.

Part - 2 (Using MS-Excel)

1. Basics of Excel- data entry, editing and saving, establishing and copying formulae, built in Functions in excel, copy and paste and exporting to MS word document.
2. Graphical presentation of data (Histogram, frequency polygon, Ogives) using MS-Excel
3. Diagrammatic presentation of data (Bar and Pie) using MS-Excel
4. Computation of Measures of central tendency, dispersion, Coefficient of Variation and coefficients of Skewness, Kurtosis using MS-Excel.

Academic Year 2020-21

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

(AUTONOMOUS)

B.Sc STATISTICS- I[st] Year Syllabus

Semester – II

[4 HPW :: 4 Credits :: 100 Marks (External:70, Internal:30)]

Unit-I

Discrete distributions – I : Uniform and Bernoulli distributions : definitions, mean, variance and simple examples. Definition and derivation of probability mass functions of Binomial distribution, Poisson distribution, properties of these distributions: median, mode, m.g.f, c.g.f., p.g.f., c.f., and moments upto fourth order, reproductive property (wherever exists) and their real life applications. Poisson approximation to Binomial distribution.

Unit-II

Discrete distributions – II: Negative binomial, Geometric distributions: Definitions and real life applications, properties of these distributions: m.g.f, c.g.f., p.g.f., c.f. and moments upto fourth order, reproductive property (wherever exists), lack of memory property for Geometric distribution. Poisson approximation to Negative binomial distribution. Hyper-geometric distribution: definition, real life applications, derivation of probability function, mean, variance. Binomial approximation to Hyper-geometric distribution.

Unit-III

Continuous distributions – I : Normal distributions – definition, properties such as m.g.f., c.g.f., c.f. and moments up to fourth order, reproductive property, wherever exists and their real life applications. Normal distribution as a limiting case of Binomial and Poisson distributions.

Unit-IV

Continuous distributions – II : Rectangular, Exponential, Gamma distributions - definition, properties: m.g.f., c.g.f., c.f. and moments up to fourth order, reproductive property (wherever exists) and their real life applications. Beta distribution of two kinds: Definitions, mean and variance.

Reference books: 3. Fundamentals of Statistics, (Vol-I) - Goon A M, Gupta M K, Das Gupta B, The World Press (Pvt) Ltd., Kolkata. 4. Fundamentals of Mathematical Statistics - V. K. Kapoor and S. C. Gupta, Sultan Chand & Sons, New Delhi.

Additional References: 8. Sanjay Arora and Bansilal: New Mathematical Statistics, Satya Prakashan , New Delhi. 9. William Feller: Introduction to Probability theory and its applications, (Vol-I), Wiley. 10. M. Jagan Mohan Rao and Papa Rao: A Text book of Statistics (Paper-I). 11. Hogg,Tanis, Rao: Probability and Statistical Inference, (7th edition), Pearson. 12. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC, PHI. 13. Gerald Keller: Applied Statistics with Microsoft Excel, Duxbury, Thomson Learning. 14. Levine, Stephen, Krehbiel, Berenson: Statistics for Managers using Microsoft Excel (4th edition), Pearson Publication.

Academic Year 2020-21

HINDI MAHAVIDYALAYA, MALLAKUNTA, HYDERABAD

(AUTONOMOUS)

B.Sc STATISTICS- Ist Year Syllabus

Semester – II

Practical-2 Probability Distributions

(3 HPW: 1 Credit **MAX MARKS: 25 Marks)**

Part - 1 (Using calculator)

1. Fitting of Binomial distribution-Direct method.
2. Fitting of Binomial distribution-Recurrence relation Method.
3. Fitting of Poisson distribution-Direct method
4. Fitting of Poisson distribution-Recurrence relation Method.
5. Fitting of Negative Binomial distribution.
6. Fitting of Geometric distribution.
7. Fitting of Normal distribution-Areas method.
8. Fitting of Normal distribution - Ordinates method.

Part - 2 (Using MS-Excel)

1. Fitting of Binomial distribution-Direct method.
2. Fitting of Poisson distribution-Direct method.
3. Fitting of Normal distribution-Areas method.
4. Fitting of Exponential distribution.
5. Fitting of Cauchy distribution.

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B.Sc.STATISTICS-IST Year

Semester – IPaper - I

Theory Model Question Paper

Time: $2\frac{1}{2}$ hrs Max. Marks: 70

SECTION A

I Write short notes on any Six of the following: **6 X 3 = 18 Marks**

1. A question from unit I
2. A question from unit I
3. A question from unit II
4. A question from unit II
5. A question from unit III
6. A question from unit III
7. A question from unit IV
8. A question from unit IV

SECTION B

II. Answer all the Questions. Each question carries 13 marks: **4 X 13 = 52 Marks**

9 (a) A question from Unit I

(OR)

(b) A question from Unit I

10 (a) A question from Unit II

(OR)

(b) A question from Unit II.

11(a) A question from Unit III.

(OR)

(b) A question from Unit III.

12(a) A question from Unit IV

(OR)

(b) A question from Unit IV.

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B.Sc.STATISTICS-IST & 2nd Year

Semester – I, II, III & IV

Paper – I, II, III & IV

Practical Model Question Paper

Time: 2hrs. Max. Marks: 25

1. One practical question paper 20 Marks
2. Record 05 Marks

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(AUTONOMOUS)
B.Sc STATISTICS- I[st] & 2nd Year
Semester – I, II, III & IV
Paper – I, II, III & IV
Scheme of Model Question for Paper I, II, III & IV

Time $2\frac{1}{2}$ **Hrs** **Max.Marks:100**

Semester Exam Pattern **70 Marks**

Section –A 8 Short Answer Questions-----Answer any Six 6x3=18 Marks
Each carries 3 marks

Section –B 4 Long Answer Questions-----With internal choice4x13=52 Marks
Each carries 13 mark

Total Marks=70

Internal Assessment Pattern **30Marks** **Duration-30 Min**

In internal assessment there will be 1 section
Section A 30-Multiple choice question 30x1/2=15 Marks
Two internal Assessment Average is to be considered $\frac{15+15}{2}$ =15 Marks
One assignment to be given - 5 Marks
Project -5 Marks
Seminar & Attendance -5 Marks

Total Marks=30

Note: Equal Weight age has to be given to all units in each semester.

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Academic Year 2020-21

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

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B.Sc STATISTICS- II Year Syllabus

Semester – III

[4 HPW :: 4 Credits :: 100 Marks (External:70, Internal:30)]

Unit –I

Bivariate data, Scattered diagram, Principle of least squares, fitting of straight line, quadratic and power curves. Concept of correlation, computation of Karl-Pearson correlation coefficient for grouped and ungrouped data and its properties. Correlation ratio, Spearman's rank correlation coefficient and its properties. Simple linear regression, correlation verses regression, properties of regression coefficients.

Unit –II

Concepts of partial and multiple correlation coefficients (only for three variables). Analysis of categorical data, their independence, Association and partial association of attributes. Various measures of association: (Yule's) for two way data and coefficient of contingency (Pearson and Tcherprow) and coefficient of colligation.

Unit – III

Concepts of Population, Parameter, Random sample, Statistic, Sampling distribution and Standard error. Standard error of sample mean(s) and sample proportion(s). Exact sampling distributions - Statement and properties of χ^2, t and F distributions and their interrelationships. Independence of sample mean and variance in random sampling from normal distributions. Point estimation of a parameter, concept of bias and mean square error of an estimate. Criteria of a good estimator- consistency, unbiasedness, efficiency and sufficiency with examples.

Unit – IV

Statement of Neyman's Factorization theorem, derivations of sufficient statistics in case of Binomial, Poisson, Normal and Exponential (one parameter only) distributions. Estimation by the method of moments, Maximum likelihood estimation (MLE), statements of asymptotic properties of MLE. Concept of interval estimation. Confidence intervals of the parameters of normal population by Pivot method.

Reference Books: 1. Goon AM, Gupta MK, Das Gupta B : Outlines of Statistics , Vol-II, the World Press Pvt. Ltd., Kolkata. 2. V. K. Kapoor and S. C. Gupta: Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi

Additional References: 1. Hoel P.G : Introduction to Mathematical statistics, Asia Publishing house. 2. Sanjay Arora and Bansilal :.New Mathematical Statistics Satya Prakashan , New Delhi 3. Hogg and Craig : Introduction to Mathematical statistics. Prentice Hall 4. Siegal, S., and Sidney: Non-parametric statistics for Behavioral Science. McGraw Hill. 5. Gibbons J.D and Subhabrata Chakraborti : Nonparametric Statistical Inference. Marcel Dekker. 6. Parimal Mukhopadhyay : Mathematical Statistics. New Central Book agency. 7. Conover : Practical Nonparametric Statistics. Wiley series. 8. V. K. Rohatgi and A. K. Md. Ehsanes Saleh : An introduction to probability and statistics, Wiley series. 9. Mood A M, Graybill F A, Boe's DC. Introduction to theory of statistics. TMH 10. Paramiteya Mariyu Aparameteya Parikshalu. Telugu Academy. 11. K.V. S. Sarma: Statistics made simple do it yourself on PC. PHI 12. Gerald Keller : Applied Statistics with Microsoft excel. Duxbury. Thomson Learning 13. Levin, Stephan, Krehbiel, Berenson: Statistics for Managers using Microsoft Excel.4th Edition, Pearson Publication. 14. Hogg, Tanis, Rao.

Probability and Statistical Inference.7th edition. Pearson Publication. 15. Milton and Arnold (fourth Edition):Introduction to Probability and Statistics, Tata McGraw Hill Publication.

B.Sc. II Year III Semester (CBCS): Statistics Syllabus (With Mathematics Combination) (Examination at the end of Semester - III) Practical – 3 : Statistical Methods and Theory of Estimation (3 HPW, Credits 1 and Marks 25)

Part – A (Using Calculator)

1. Generation of random samples from Uniform (0,1), Uniform (a,b), Normal and Poisson and Exponential Distributions.

2. Fitting of straight line and parabola by the method of least squares.

3. Fitting of power curves of the type y= a xb , y=a bx and y=a ebx by the method of least squares.

4. Computation of Yule's coefficient of association and Pearson's, Tcherprows coefficient of contingency.

5. Computation of correlation coefficient and regression lines for ungrouped data.

6. Computation of correlation coefficient, forming regression lines for ungrouped data.

7. Computation of correlation coefficient, forming regression lines for grouped data.

8. Computation of multiple and partial correlation coefficients.

9. Computation of correlation ratio

Part – B (Using Excel)

10. Simulation of random samples from Uniform (0,1), Uniform (a,b), Exponential, Normal and Poisson distributions using MS Excel.

11. Fitting of straight line and parabola by the method of least squares using MS Excel.

12. Fitting of power curves of the type y= a xb , y=a bx and y=a ebx by the method of least squares using MS Excel.
13. Computation of correlation coefficient, forming regression lines using MS Excel.

14. Computation of multiple and partial correlation coefficients using MS Excel.

Academic Year 2020-21

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

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B.Sc STATISTICS- II Year Syllabus

Semester – IV

[4 HPW :: 4 Credits :: 100 Marks (External:70, Internal:30)]

Unit–I

Concepts of statistical hypotheses, Null and Alternative hypothesis, Critical region, two types of errors, Level of significance and Power of a test. One and two tailed tests, test function (non-randomized and randomized). Statement and Proof of Neyman-Pearson's fundamental lemma for Randomized tests. Examples in case of Binomial, Poisson, Exponential and Normal distributions and their power of the test functions.

Unit-II

Large sample tests for single sample mean, difference of means, single sample proportion, difference of proportions and difference of standard deviations. Fisher's Z-transformation for population correlation coefficient(s) and testing the same in case of one sample and two samples. Definition of order statistics and statement of their distributions.

Unit – III

Tests of significance based on 2 - 2 -test for specified variance, goodness of fit and test for independence of attributes (rxs, 2xk and 2x2 contingency tables). Tests of significance based on student's - t – t-test for single sample specified mean, difference of means for independent and related samples, sample correlation coefficient. F - test for equality of population variances.

Unit – IV

Non-parametric tests - their advantages and disadvantages, comparison with parametric tests. Measurement scale - nominal, ordinal, interval and ratio. Use of Central Limit Theorem in testing. One sample runs test, sign test and

Wilcoxon-signed rank tests (single and paired samples). Two independent sample tests: Median test, Wilcoxon – Mann-Whitney U test, Wald Wolfowitz's runs test. Use of central limit theorem in testing.

Reference Books: 1. Goon AM, Gupta MK, Das Gupta B : Outlines of Statistics , Vol-II, the World Press Pvt. Ltd., Kolkata. 2. V. K. Kapoor and S. C. Gupta: Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi Additional References: 1. Hoel P.G : Introduction to Mathematical statistics, Asia Publishing house. 2. Sanjay Arora and Bansilal :.New Mathematical Statistics Satya Prakashan , New Delhi 3. Hogg and Craig : Introduction to Mathematical statistics. Prentice Hall 4. Siegal, S., and Sidney: Non-parametric statistics for Behavioral Science. McGraw Hill 5. Gibbons J.D and Subhabrata Chakraborti : Nonparametric Statistical Inference. Marcel Dekker. 6. Parimal Mukhopadhyay : Mathematical Statistics. New Central Book agency. 7. Conover : Practical Nonparametric Statistics. Wiley series. 8. V. K. Rohatgi and A. K. Md. Ehsanes Saleh : An introduction to probability and statistics, Wiley series. 9. Mood A M, Graybill F A, Boe's DC. Introduction to theory of statistics. TMH 10. Paramiteya Mariyu Aparameteya Parikshalu. Telugu Academy. 11. K.V. S. Sarma: Statistics made simple do it yourself on PC. PHI 12. Gerald Keller : Applied Statistics with Microsoft excel. Duxbury. Thomson Learning 13. Levin, Stephan, Krehbiel, Berenson: Statistics for Managers using Microsoft Excel.4th Edition, Pearson Publication. 14. Hogg, Tanis, Rao. Probability and Statistical Inference.7th edition. Pearson Publication. 15. Milton and Arnold (fourth Edition):Introduction to Probability and Statistics, Tata McGraw Hill Publication.

Academic Year 2020-21

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

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B.Sc STATISTICS- II Year Syllabus

w.e.f: Academic Year: 2020-2021 (With Mathematics Combination)

Semester – IV

Practical-1 Statistical Inference

3 HPW: 1 Credit **Max Marks : 25 Marks**

Part – A (Using Calculator)

1. Large sample tests for mean(s), proportion(s), Standard deviation(s) and correlation coefficient. 2. Small sample tests for single mean and difference of means and correlation coefficient. 3. Paired t-test. 4. Small sample test for single and difference of variances. 5. 2 – test for goodness of fit and independence of attributes. 6. Nonparametric tests for two independent samples (Median test,Wilcoxon Mann Whitney - U test, Wald - Wolfowitz's runs test)

Part – B (Using Excel)

7. Use of Look up and Reference functions for data analysis. 8. Creating and assigning Macros. 9. Small sample tests for mean(s), paired t-test and correlation coefficient using MS Excel. 10. Small sample test for single and difference of variances using MS Excel. 11. 2 – test for goodness of fit and independence of attributes using MS Excel. 12. Nonparametric tests for single and related samples (sign test and Wilcoxon signed rank test) and one sample runs test. Note : Training shall be on establishing formulae in Excel cells and deriving the results. The Excel output shall be exported to MSWord for writing inferences.

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED), (Affiliated to Osmania University)

Nallakunta, Hyderabad-44

B.Sc. STATISTICS

Choice Based Credit System(CBCS)

Semesters - I, II, III & IV

PAPER	SUB CODE	PAPER TITLE	INSTRUCTION HRS/ WEEK	DURATION OF EXAM (IN HRS)	SEMESTER END EXAMINATION MARKS	CONTINOUS EVALUATION IA AND ASSIGN.	TOTAL MARKS	CREDITS
		THEORY						
I		Descriptive Statistics & Probability	4	2 ½	70	30	100	4
II		Probability Distributions	4	2 ½	70	30	100	4
III		Statistical Methods	4	2 ½	70	30	100	4
IV		Statistical Inference	4	2 ½	70	30	100	4
		PRACTICALS						
I		Descriptive Statistics & Probability	3	1	20+5(record)	***		
II		Probability Distributions	3	1	20+5(record)	***	25	1
III		Statistical Methods	3	1	20+5(record)	***	25	1
IV		Statistical Inference	3	1	20+5 (record)	***	25	1
		Total	28	***	380	120	25	1
							500	20

Chairperson

E-Swamatha

University Nominee

g. Jayasree.

Members

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3. Jayasree.

Principal

24/12/20

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)
(Affiliated to Osmania University)
Nallakunta, Hyderabad-44

DEPARTMENT OF STATISTICS

B.Sc. STATISTICS

PANEL OF EXAMINERS

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)
(Affiliated to Osmania University)
Nallakunta, Hyderabad-44

DEPARTMENT OF STATISTICS
B.Sc. STATISTICS
PANEL OF EXAMINERS

	SEMESTERS I, II, III & IV			
Subject & Code	Name of the Internal Examiner	Name of the External Examiner	Institution Name	Contact No
scriptive Statistics & obability(1st ar)SEM-I	Smt. P. Rama Devi (9908019440)	Dr.Yugandher --- Mrs.T.Vedhavathi	St.FRANCIS Degree college,Secundrabad --- Govt. Degree collegefor women,BegumpetHyd-16	9849651251 --- 9490411357
robability istributions(1ST YEAR EM-II	Smt. P. Rama Devi	Mrs.S.Jayasree --- Mr.K.Venkata Ramana	RBVRR Degree&PG college,Narayanaguda,Hyderabad. --- Jagruthi Degree &PG College,Narayanaguda,hyd-29.	9849236602 --- 040-23234860
tatistical Methods(2nd ear)SEM-III	Smt. P. Rama Devi	Dr.Mrs.Ch.Laxmi Sujatha --- Mr.Ravi Kumar	Assistant professor,Dept.of statistics.Nizam college,hyd-1 --- St. Mary s Degree college.	9177507545 --- 9885284228
Statistical Inference(2nd Year)SEM-IV	Smt. P. Rama Devi	Dr.Jagan Mohan Rao --- G.Nirmala	Jagruthi Degree &PG college Narayanaguda,hyderabad. ---	9849821368 ---

			Sidhartha degree college Dilshuknagar,hyderabad.	

Chairperson — Swapnalatha

University Nominee

HEAD
Department of Statistics,
University College of Science
Osmania University Hyderabad-7.

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Principal
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