

SYLLABUS
B.A./B.Sc. (Statistics) Part – I (1st Semester)
Outlines of Tests Syllabi and Courses of Reading.
For Examination of Session 2017-18, 2018-19 & 2019-20.

Paper-I : Descriptive Statistics-I

No. of Lectures : 60
to be delivered
Min. Pass Marks: 35%

Uni. Examination: 36
Internal Assessment: 14
Time Allowed : 3 Hours

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having eight parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 5 marks each where as section C will carry 16 marks

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 5 marks each where as section C will carry 16 marks.

Use of scientific non-programmable calculator is allowed

SECTION- A

Collection of Data : Primary Data; Designing a Questionnaire and a Schedule. Secondary Data; Major Sources including some Government Publications. Concept of a Statistical Population and Samples from a Population, Quantitative and Qualitative Data, Discrete and Continuous Data, Nominal, Ordinal, Ratio & Interval Scales.

Presentation of Data: Frequency Distribution, Diagrammatical Representation of Data, Graphical Representation, Histogram, Frequency Polygon, Frequency Curves and Ogives .

SECTION-B

Analysis of Quantitative Data: Univariate Data; Concepts of Central Tendency , Dispersion , Skewness and Kurtosis and Their Measures including those Based on Quartiles and Moments. Sheppard's Correction for Moments (Without Derivation).

TEXT BOOKS

1. Goon, A.M., Gupta M.K., Dasgupta, B. Fundamental of Statistics. Vol. 1. 2002, world Press. Calcutta.

RECOMMENDED READINGS

1. Bhat B.R, Srivenkatramana T and Rao Madhava K.S. (1997): Statistics : A Beginner's Text, Vol, I , New Age International (P) Ltd.
2. Croxton F.E, Cowden D. J and Kelin S (1973) : Applied General statistics, Prentice Hall of India .
3. Spiegel, M.R. (1967): Theory & Problems of Statistics, Schaum's Publishing Series.
4. Wiley Series in Probability and Statistics. Applied Probability and statistics section.

Paper-II : Probability Theory-I

No. of Lectures : 60
to be delivered
Min. Pass Marks: 35%

Uni. Examination: 36
Internal Assessment: 14
Time Allowed : 3 Hours

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having eight parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 5 marks each where as section C will carry 16 marks

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 5 marks each where as section C will carry 16 marks.

Use of scientific non-programmable calculator is allowed

SECTION- A

Concepts in Probability: Random Experiment, Trial, Sample Point and Sample Space, Events; Mutually Exclusive, Exhaustive, Independent and Equally Likely Events. Definition of the Probability; Classical, Relative Frequency Approach to Probability & their Demerits and Axiomatic Approach to Probability. Properties of Probability based on Axiomatic Approach, Conditional Probability, Bayes Theorem and its Applications.

SECTION- B

Random Variable: Definitions of Discrete Random Variables, Probability Mass Function, Continuous Random Variable, Probability Density Function. Illustrations of Random Variables and its Properties, Expectation of a Random Variable and its Properties, Moments, Measures of Location and Dispersion, Moment Generating Function and Probability Generating Function. Two Dimensional Random Variables –Joint, Marginal and Conditional Distributions (Concepts & Simple Applications) .

TEXT BOOKS

1. P.L. Meyer (1970): Introductory Probability and Statistical Applications Addison-Wesley.
2. Goon, A.M., Gupta, M.K., Dasgupta, B.(2002): Fundamental of Statistics, Vol. I, World Press, Calcutta.
3. Mood A.M., Graybill F.A and Boes D.C. (1974): Introduction to the Theory of Statistics, McGrawh Hill.

REFERENCE READINGS

1. Bhat B.R, Srivenkatramana T and Rao Madhava K.S. (1997): Statistics: A Beginner's Text, Vol. II, New Age International (P) Ltd.
2. David S (1996): Elementary Probability, Oxford Press. John E. Freund's Mathematical Statistics 6th Ed. Pub. Pearson Education

Paper-III: PRACTICAL-I

Total Practical Sessions : 30
(each of 90 Mins.)
Min. Pass Marks: 35%

Uni. Examination: 36
Internal Assessment: 14
Time Allowed: 3 Hours

INSTRUCTIONS FOR THE PAPER SETTER AND CANDIDATES

The Practical paper will consist of five exercises. The candidates are required to attempt any three exercises. All exercises will carry equal marks. The distribution of marks is as under :

Lab. Record	:	9
Viva-voce	:	9
Exercises	:	18

The exercises in the paper will be based on the syllabus of the papers **Paper -I (Descriptive Statistics-I)** and **Paper -II (Probability Theory-I)**.

B.A./B.Sc. (Statistics) Part – I (2nd Semester)
Outlines of Tests Syllabi and Courses of Reading.
For Examination of Session 2017-18, 2018-19 & 2019-20.

Paper-I : Descriptive Statistics-II

No. of Lectures : 60
to be delivered
Min. Pass Marks: 35%

Uni. Examination: 36
Internal Assessment: 14
Time Allowed : 3 Hours

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having eight parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 5 marks each where as section C will carry 16 marks

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 5 marks each where as section C will carry 16 marks.

Use of scientific non-programmable calculator is allowed

SECTION - A

Bivariate Data: Scatter Diagram, Product Moment Correlation Coefficient, Properties and Coefficient of Determination. Spearman's Rank Correlation Coefficient . Concept of Errors in Regression, Principle of Least Square, Fitting of Linear Regression and Related Results.

Section-B

Multivariate Data: Concepts of Multiple Regression, Multiple and Partial Correlation Coefficients (Only Results No Derivations) and their Applications.

Analysis of Categorical Data: Contingency of Categorical Data ,Independence & Association of Attributes . Various Measures of Association for Two Way Classified Data.

TEXT BOOKS

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| 1. | Goon, A.M., Gupta
M.K., Dasgupta, B. | Fundamental of Statistics. Vol. 1. 2002, world
Press. Calcutta. |
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REFERENCE READINGS

1. Bhat B.R, Srivenkatramana T and Rao Madhava K.S. (1997): Statistics : A Beginner's Text, Vol, I , New Age International (P) Ltd.
2. Croxton F.E, Cowden D. J and Kelin S (1973) : Applied General statistics, Prentice Hall of India .
3. Spiegel, M.R. (1967): Theory & Problems of Statistics, Schaum's Publishing Series.
4. W.W. Daniel : Bio Statistics : A foundation for Analysis in the Health Sciences 7th Ed. (1999).
5. Wiley Series in Probability and Statistics. Applied Probability and Statistics Section.

Paper-II : Probability Theory-II

No. of Lectures : 60
to be delivered
Min. Pass Marks: 35%

Uni. Examination: 36
Internal Assessment: 14
Time Allowed : 3 Hours

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having eight parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 5 marks each where as section C will carry 16 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 5 marks each where as section C will carry 16 marks.

Use of scientific non-programmable calculator is allowed

SECTION- A

Standard Univariate Discrete Distributions and Properties: Uniform, Binomial, Poisson, Hyper Geometric, Geometric and Negative Binomial Distributions. Continuous Univariate Distributions: Uniform , Normal , Exponential, Gamma, Beta and Chi-Square Distributions.

SECTION-B

Bivariate Normal Distribution, Marginal and Conditional Probability Distributions Associated with Bivariate Normal Distribution (Without Derivation).
Chebyshev's Inequality and its Applications, Statements and Applications of Weak Law of Large Numbers and Central Limit Theorems (De-Moivre's-Laplace and Lindeberg-Levy Versions).

TEXT BOOKS

1. P.L. Meyer (1970) : Introductory Probability and Statistical Applications Addison-Wesley.
2. Goon, A.M., Gupta, M.K., Dasgupta, B.(2002) : Fundamental of Statistics, Vol. I, World Press ,Calcutta .
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- 2 David S (1996) : Elementary Probability, Oxford Press.
- 3 John E. Freund's Mathematical Statistics 6th Ed. Pub. Pearson Education

Paper-III: PRACTICAL-II

Total Practical Sessions : 30
(each of 90 Mins.)
Min. Pass Marks: 35%

Uni. Examination: 36
Internal Assessment: 14
Time Allowed: 3 Hours

INSTRUCTIONS FOR THE PAPER SETTER AND CANDIDATES

The Practical paper will consist of five exercises. The candidates are required to attempt any three exercises. All exercises will carry equal marks. The distribution of marks is as under :

Lab. Record	:	9
Viva-voce	:	9
Exercises	:	18

The exercises in the paper will be based on the syllabus of the papers **Paper -I (Descriptive Statistics-II)** and **Paper -II (Probability Theory-II)**.