

Patna University

*Courses of Study
for
B.A./B.Sc. (STATISTICS)*

Honours Courses

550/1000000

0888

22

44

68

706



125

PART - I

Part I consist of two theory papers and a practical examination. The distribution of marks is as follows

Paper I (Theory)	75
Paper II (Theory)	75
Practical examination	50

(Practical to be carried over using Computers/Calculators)

Part - I 20 (based on practical problems from General Statistics of Paper - I (Theory))

Part - II 20 (based on Practical problems from Numerical Analysis I of Paper - I and Paper - II (Theory))

Practical Note-book -10

Each of the theory and practical examinations will be of three hours duration

Prasad
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S.K. Singh
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PAPER 1 (Theory)
(75 Marks)

The examinees will be required to answer 5 out of 10 questions selecting at least two from each Group.

Group A: General Statistics (six Questions)

Definition of statistics and its application in various fields Frequency distribution. Measures of location and dispersion. Moment, Skewness and Kurtosis and their measures. Regression and the principle of least square, Correlation coefficient, Rank correlation coefficient, Intra-class correlation coefficient, Correlation Ratio, Partial and Multiple Correlation and Regression for n variables.

Theory of Attributes including measures of association.

Group B: Numerical Analysis (Four Questions)

Introduction to difference operators and their relationship, Interpolation with equal as well as unequal intervals, Newton's and Lagrange's formulae-their derivation and uses, Central difference formulae, Gauss's Forward and Backward formulae, Stirling's and Bessel's formulae, Zero differences.

Numerical integration – Trapezoidal, Simpson's one – third, three-eight and weddle's rules Euler –Maclaurin formulae.

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PAPER II (Theory)
(75 marks)

The examinees will be required to answer 5 out of 10 questions in this paper.

Probability and probability distribution Algebra of sets, Set Function. Probability as a set functions. Critical evaluation of various definitions of probability Random variables. Probability density function, Distribution function, Generating function – PGF, MGF and CF. Mathematical expectation, Conditional probability, Marginal and Conditional distribution, Stochastic Independence, Some special distribution viz- Binomial, Poisson, Geometric, Negative Binomial, Multinomial, Hypergeometric, Rectangular, Normal and Exponential. Tchebychev's Inequality. Stochastic convergence, Weak law of large numbers, Central limit theorem (Lindberge Lavy's versions).

Practical Examination

50

The Practical examination will be conducted in two parts. The distribution of marks and topics part – wise will be as follows

Part – I (20 marks)

Topic: Practical problems from General Statistics of paper – I

Part – II (20 marks)

Topic – practical problems from Numerical Analysis – I of Paper – I and II
Practical Note Book: 10

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B.A. /B.Sc. Part II Honours Course

Part II

Part II consists of two theory papers and a practical examination. The distribution or marks is as follows

Paper III (Theory)

75

Paper IV (Theory)

75

Practical: Examination

50

(Practical to be carried over using Computers/Calculators)

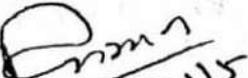
The practical examination will be conducted in two parts with distribution of 50 marks as follows:

Parts I - 20 [Based on problems from Paper (III)] (Theory)

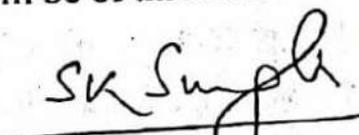
Parts II - 20 [Based on problems from Paper (IV)] (Theory)

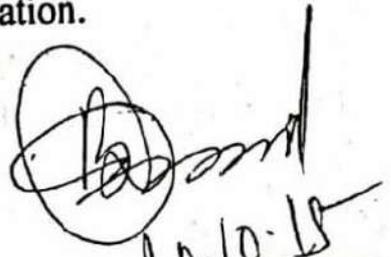
Practical Note - book -10

Each of theory and practical examination will be of three hours duration.


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PAPER - III (Theory)

The examinees will be required to answer 5 out of 10 questions, selecting at least one question from each group

GROUP A: NUMERICAL ANALYSIS II (THREE QUESTIONS)

Inverse interpolation, solutions of algebraic and transcendental equations, Difference equations with coefficients, Simple cases of numerical solutions of differential equation - Euler and modified Euler.

GROUP B: SAMPLING DISTRIBUTION (FOUR QUESTIONS)

Concept of sampling Distribution. Gamma and Beta distribution, X^2 distribution, Distribution of Sampling mean and variance, Students 't' & Snedecors' F distributions and their inter-relations, Distributions of correlation coefficient in a random sample from an uncorrelated population, Non central X^2 Distribution.

GROUP C: STANDARD ERRORS AND TEST OF SIGNIFICANCE (THREE QUESTIONS)

Standard errors of sample proportion and mean, Large sample test of significance of proportion and mean. Test of significance based on X^2 , t and F distribution, fisher Z - transformation and test of significance of sample correlation coefficient from a correlated population

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PAPER IV (Theory) (75 Marks)

The examinees will be required to answer 5 questions selecting at least two from each group.

GROUP A – Design of Experiment (Five Questions)

Principles of experimentation. Meaning and purpose of randomization, replication and local control, Analysis of variance, Fixed and random effect models, Lay out and analysis of Completely randomized, randomized Block and Latin Square designs, Missing plot technique when one observation is missing. Factorial experiment including two & three factors each at 2 levels, Confounding: Total, Partial and Balanced.

GROUP B – Sample Survey (Five Questions)

Sample survey versus complete enumeration, problems connected with sampling at the stage of planning, execution and analysis of large scale sample survey. Simple random sampling, Stratified random sampling, Cluster sampling with equal cluster size. Systematic sampling. Two stage sampling, Ratio and regression methods of estimation. Sources of errors in sample surveys.

Practical Examination

50 Marks

(Practical to be carried out using Computer/Calculator)

The practical examination of 50 marks in two parts with distribution of 50 marks as follows:

Part I – 20 (Based on problems from paper III)

Part II – 20 (Based on problems from paper IV)

Practical Note book: 10

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A. K.
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B.A./B.Sc. Part III Honours Course

STATISTICS Honours

Part III will consist of four papers, - three theory papers viz. paper V. paper VI and Paper VII and one practical Paper. i.e. Paper VIII, each carrying 100 marks. Each of the theory papers will be of three hours duration and each of the two parts of practical examination will also be of three hours duration.

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SK Singh
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B. Singh
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Paper VI (Theory 100 Marks)

The examinees will be required to answer 5 out of 10 questions, selecting at least one from each group.

Group A - Introduction to Demography (Two questions)

Definitions and scope, Sources of data Various measures of mortality and fertility. Construction of complete and abridged life tables.

Group B- Economic statistics (five questions)

Index number their definition and purposes. Construction of index numbers Laspeyre's pasche's, Marshall-Edgeworth and fisher's Index number, cost of living and whole sale price index numbers, Time reversal and factor reversal tests.

Time series and purpose of its analysis, components of a time - series. Measurement of trend by Graphical method, semi average method of moving averages, spencer 15 & 21 point formulae. Construction of seasonal indices, Elimination of trend and seasonality from original time series. Variate difference method.

Group C- Statistical Quality Control (three questions)

Concept of quality and its measurement Meaning of statistical quality control. Causes of quality variation; \bar{X} , R, σ (sigma), P and C controls charts. Single and double sampling inspection plans and their O C curves, amount of inspection, AOQ A.S.N and ATI Curves.

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Paper VIII (Practical)

The practical examination will be conducted in two parts. The distribution of marks and topics part-wise will be as follows

Part I - 40 marks

Topic: topics in paper V plus problems from demography of paper VI

Part II - 40 marks

Topic: - Group B and C of paper VI plus paper VII.

Practical notebook: 20 (15+5)

Pravin
10.10.15

A.K.
10.10.15

SK Singh
10.10.15

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