STATISTICS

THIRD YEAR ARTS (STATISTICS HONOURS)

FIFTH SEMESTER

Full mark -75

(MIDSEM 15+ENDSEM-60)

Time - 3 hours

C - 11.1

THEORY (4 Credits)

OPERATION RESEARCH

UNIT-I

Introduction, definition, scope of OR, phases of OR, models of OR. Linear programming, formulation, procedure of solving LPP by graphic method, definition of feasible solution, basic feasible solution, slack, surplus, artificial variable and simplex method, its algorthim & solution.

UNIT-II

Two phase method, duality in LPP, formulation procedure of finding dual, primal, dual solutions.

UNIT-III

Transportation problem, mathematical formulation, definition, initial basic feasible solution, northwest corner method, least cost method, vogel's approximation method.

UNIT-IV

Assignment problem, mathematical formulation, solution by Hungerian method.

UNIT-V

Simulation, types of simulation, Montecarlo technique, advantages and disadvantages,definition of reliability failure rates.

C -11.2

PRACTICAL (2 Credits)

Full mark -25

(ENDSEM)

[EXPERIMENT-15+RECORD-6+VIVA-4)]

Time - 3 hours

1 - Formulation and solution of LPP by Graphic method.
2 - Solution of LPP by simplex method.
3 - Problems in transportation.
4 - Problem in Assignment.
5 - Problem in duality.

BOOKS RECOMMENDED

1 - Operation Research by S. Gauss.
2 - Operation Research by Kanti Swarup.
3 - Operation Research by P.K Tripathy, Kalyani publisher.

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THIRD YEAR ARTS (STATISTICS HONOURS)

FIFTH SEMESTER

Time - 3 hours

Full mark -75
(MIDSEM 15+ENDSEM-60)

C - 12.1

THEORY (4 Credits)

VITAL STATISTICS & OFFICIAL STATISTICS

UNIT-I

Measurment of mortality, Crude death rate, Age-Specific death rates, Standardised death rate. IMR

UNIT-II

Life table, its uses, columns of life table, abridged life table (reed merell method)

UNIT-III

Measurement of fertility, CBR, General fertility rate. Age-Specific birth rate, total fertility rate, GRR, NRR

UNIT-IV

Present statistical system in India. CSO, NSSO and its functions.

UNIT-V

Population census, method of census, salient features its uses and problems, registration method, Agricultural statistion.

C -12.2

PRACTICAL (2 Credits)

Time - 3 hours

Full mark -25
(ENDSEM)
[EXPERIMENT-15+RECORD-6+VIVA-4)]

1 - Culculation of CDR, ASDR, SDR, IMR.
2 - Construction of life table.
3 - Culculation of CBR, GFR, ASBR, TFR, GRR, NRR

BOOKS RECOMMENDED

1 - Fundamentals of Appliedstatistics - S.C Gupta & V.K Kapoor
2 - Statisticalsystems in india - Asthana & srivastava S.C hand 2009.
3 - Indian office statistical system- Mr Saluja, publication society 2006.

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THIRD YEAR ARTS (STATISTICS HONOURS)

FITTH SEMESTER

Time - 3 hours

Full mark -75
(MIDSEM 15+ENDSEM-60)

DSE - 1.1

THEORY (4 Credits)

STATISTICAL METHOD-1

UNIT-I

Idea about type of data, collection, Classification, tabulation and presentation of data. Frequency distribution, graphic and diagramatic representation of data.

UNIT-II

Analysis of Quantitative data, concepts of central tendennoy, disperson and relative dispertion, moments, skewness and kurtosis.

UNIT-III

Bivariate data : scatter diagram, curve fitting by method of least square (linear,quadratic,exponential)

UNIT-IV

Correlation cofficient ; product moment correlation cofficient and its properties. Cofficient of determination, correlation ratio, rank correlation

UNIT-V

Regression analysis, Concepts of regression, fitting of regression lines, regression cofficient and their properties.

DSE -1.2

Time - 3 hours

PRACTICAL (2 Credits)

Full mark -25
(ENDSEM)
[EXPERIMENT-15+RECORD-6+VIVA-4)]

1 - Computation of mean, median, mode
2 - Computation of M.D, S.D, variance and C.V
3 - Computation of skewness & kurtosis
4 - Computation of moments.

BOOKS RECOMMENDED

1 - Fundamentals of statistics by S.C Gupta Himalaya publication
2 - Fundamentals of Mathematical statistics. by S.C Gupta & V.K Kapoor.

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THIRD YEAR ARTS (STATISTICS HONOURS)
FIFTH SEMESTER

Time - 3 hours

DSE- 2.1

Full mark -75
(MIDSEM 15+ENDSEM-60)

THEORY (4 Credits)

PROBABILITY

UNIT-I

Random Experiment : trials, sample point and sample space, event, operation of events,concepts of mutually exclusive and exhaustive events.
Definition of probability, classical, Axiomatic, Addition law of pribability.

UNIT-II

Multiplication law of probability, conditional probability, independance of events, Bays theorm.

UNIT-III

Random variables, PMF, PDF, Distribution function, joint, marginal and conditional probability distribution.

UNIT-IV

Mathematical Expectation of a R.V and its properties, MGF, CGF.

UNIT-V

Discrete probability distribution, Uniform, Binomial, Poission, Continuous prob. distn, Normal distn.

DSE -2.2

PRACTICAL (2 Credits)

Time - 3 hours

Full mark -25
(ENDSEM)
[EXPERIMENT-15+RECORD-6+VIVA-4)]

1 - Calculation of marginal, joint probability
2 - Calculation of conditional probability.
3 - Fitting of Binomial distribution
4 - Fitting of poission distribution

BOOKS RECOMMENDED

1 - Fundamentals of mathematical statistics by S.C Gupta & V.K Kaapoor. S.Chand.
2 - Fundamentals of statistics. by S.C Gupta Himalayan publication.

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THIRD YEAR ARTS (STATISTICS HONOURS)
SIXTH SEMESTER

Time - 3 hours | Full mark -75 (MIDSEM 15+ENDSEM-60)

C - 13.1
THEORY (4 Credits)
DESIGN AND ANALYSIS OF EXPERIMENT & STATISTICAL QUALITY CONTROL

UNIT-I

ANOVA, one way and two way classification (with one observation per cell) with fixed effect model and their analysis

UNIT-II

Basic principles of Experimental design, CRD, RBD.Estimation of missing value in RBD. Efficiency of RBD w.r.t CRD.

UNIT-III

LSD, Missing value in LSD comparision of efficiency, Advantages.

UNIT-IV

Meaning and uses of SQC. Process and product control, chance and assignable causes of variation 3- sigma control limits, Mean and R chart.

UNIT-V

Natural tolerance limit and specification limit. Acceptance sampling by attributes. AQL, LTPD, AOQL & ASN. Consumer risk, Producer risk, O.C curve.

C -13.2
PRACTICAL (2 Credits)

Time - 3 hours | Full mark -25 (ENDSEM) [EXPERIMENT-15+RECORD-6+VIVA-4)]

1 - Analysis of CRD, RBD
2 - Analysis of LSD.
3 - Analysis of RBD, LSD with one missing value.

BOOKS RECOMMENDED

1 - Design and Analysis of experiment by Das and Giri wiley eastern ND 2008
2 - Fundamentals of applied Statistics by S.C Gupta & V.K Kapoor.

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THIRD YEAR ARTS (STATISTICS HONOURS)
SIXTH SEMESTER

Time - 3 hours

Full mark -75
(MIDSEM 15+ENDSEM-60)

C - 14.1
THEORY (4 Credits)
COMPUTER APPLICATION, DEMAND ANALYSIS AND PSYCHOLOGICAL AND EDUCATIONAL STATISTICS

UNIT-I

Computer fundamental : Definition, history of computer, generation and parts of computer, input. / output unit, CPU, Booting, memory, Hardware.

UNIT-II

M.S Excel, formulaes in M.S Excel, Creating charts in M.S Excel.

UNIT-III

Computer viruses, Internet, E- mail.

UNIT-IV

Demand Analysis, Law of Demand, Price-elasticity of Demand, Estimation of Demand curve, form of Demand function, Engel's law and Engel's Curve, Income elasticity of Demand.

UNIT-V

Psychological and Educational statistics. Introduction, Scaling, Reliability of test scores, error variance.

C -14.2
PRACTICAL (2 Credits)

Time - 3 hours

Full mark -25
(ENDSEM)
[EXPERIMENT-15+RECORD-6+VIVA-4)]

1 - **Problems in** Demand Analysis
2 - **Problem in** Reliability.

BOOKS RECOMMENDED

1 - **Computer based** Numerical & statistical Techniques by S.K Kumar S. chand 2012
2 - **Fundamentals** of Applied statistics. S.C Gupta & V.K Kapoor.

29.6.16
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29.6.16
(B. C. Sahoo)

THIRD YEAR ARTS (STATISTICS HONOURS)

SIXTH SEMESTER

Time - 3 hours

Full mark -75
(MIDSEM 15+ENDSEM-60)

DSE- 3.1

THEORY (4 Credits)

STATISTICAL METHOD-II

UNIT-I

Multivariate data, multiple and partial correlation.

UNIT-II

Analysis of Categorical data, consistency of categorical data, independence and association of attributes.

UNIT-III

Concepts of population, sample, parameter, statistic and sampling distribution, standard error of moments, distribution of sample mean and variance from normal distribution.

UNIT-IV

Test of Significance based on large samples, (One - sample and two-sample problems)

UNIT-V

Test of significance based on Chi-square, student's "t" and snedekors "F" distribution.

DSE -3.2

PRACTICAL (2 Credits)

Time - 3 hours

Full mark -25
(ENDSEM)
[EXPERIMENT-15+RECORD-6+VIVA-4)]

1 - Computation of multiple correlation.
2 - Computation of partial correlation.
3 - Consistency of Categorical data.
4 - Test of significance based on large samples.
5 - Test of significance based on chi-square t, f, distribution.

BOOKS RECOMMENDED

1 - Fundamentals of Mathematical statistics by S.C Gupta & V.K Kapoor.
2 - Statistical methods by S.P Gupta.

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THIRD YEAR ARTS (STATISTICS ELECTIVE)

SIXTH SEMESTER

Time - 3 hours | DSE-4 | Full mark -100 (Project 75+Viva 25)

PROJECT REPORT
AND
PRESENTATION

29.6.16
M. K. Panda.

16.6.16
B C Sahoo