SOLAPUR UNIVERSITY, SOLAPUR.

SYLLABUS

FOR

B.Com. Part-III (Semester Pattern) New

IN

ADVANCED STATISTICS

To be effective from the academic year 2015-16 (June-2015).

Solapur University, Solapur

Semester Pattern New Syllabus

B.Com.III Semester V

(Optional) - Paper - I

ADVANCED STATISTICS

(w.e.f. June 2015)

Unit -I PERMUTATIONS & COMBINATIONS **(12)**

Definitions and Relations between them,

Simple examples based on them.

Binomial Theorem (without proof)

Simple examples based on it

Unit – II PROBABILITY THEORY **(15)**

Definition of terms used in probability, Definition of probability,

Definition of conditional probability

Additive & Multiplicative theorems on probability,

Bays theorem, Examples based on these

Unit – III RANDOM VARIABLE & PROBABILITY DISTRIBUTION **(15)**

Meaning of random variable, concept of discrete & continuous random variables. Definition of probability mass function & probability density function Distribution function. Definition of Bivariate discrete random variable.. Joint probability mass function of X & Y

Marginal & Conditional Probability Distributions.

Unit – IV MATHEMATICAL EXPECTATION **(18)**

Definition of Mathematical Expectation of Univariate & Bivariate discrete random variable Addition & multiplication laws of mathematical expectation for discrete random variable only.

Examples based on these. Mean & Variance of discrete random variable.

Conditional mean & Conditional Variance. Examples based on these.

REFERENCE BOOKS :

1) Statistical Methods by S.P.Gupta.

2) Mathematical Statistics by Saxena & Kapoor.

3) Statistics by Sancheti & Kapoor.

4) Introduction to Mathematical Statistics by D.N.Elance.

5) A Text book of Calculus Bhagwat & Pawate

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Semester Pattern New Syllabus

B.Com.III Semester VI

(Optional) - Paper - I

ADVANCED STATISTICS

(w.e.f. June 2015)

Unit – I BINOMIAL DISTRIBUTION **(15)**

Definition of p.m.f., Mean & Variance of Binomial Distribution . Properties of Binomial Distribution. Condition under which binomial distribution is applicable. Examples based on this.

Unit – II POISSON DISTRIBUTION **(15)**

Definition of p.m.f., Mean & Variance of Poisson Distribution. Properties of Poisson Distribution. Condition under which Poisson distribution is applicable. Examples based on this.

Unit – III NORMAL DISTRIBUTION **(15)**

p.d.f. of Normal Distribution, S.N.V., Normal Probability curve. Properties of normal distribution. Examples based on area under normal curve.

Unit – VI Demography **(15)**

Introduction, Measures of Mortality (CDR, SDR, STDR)

Measures of fertility (CBR, GFR, SFR, TFR)

Population Growth rates : (Crude rate of Natural Increase., Pearls Vital Index, GRR & NRR) Examples on these.

REFERENCE BOOKS :

1) Statistical Methods by S.P.Gupta.

2) Mathematical Statistics by Saxena & Kapoor.

3) Statistics by Sancheti & Kapoor.

4) Introduction to Mathematical Statistics by D.N.Elance.

5) Fundamental's of Applied Statistics by Kapoor & Gupta.

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Semester Pattern New Syllabus

B.Com.III Semester V

(Optional) - Paper - II

ADVANCED STATISTICS

(w.e.f. June 2015)

Unit-I TESTING OF HYPOTHESIS **(12)**

Definition of parameter, statistic, hypothesis (Simple & Composite) Null & alternative hypothesis, critical region, level of significance, Type I & Type II error, power of the test (Only concepts)

Unit-II LARGE SAMPLE TESTS **(15)**

1) Test for an assumed mean.

2) Test for an assumed Proportion.

3) Comparison of means of two populations.

4) Comparison of proportion of two populations.

Unit-III Applications of Chi-Square Distribution **(15)**

Definition of Chi-square variate & its p.d.f.

Applications of Chi-square,

1) To Test H0: $\sigma^2 = \sigma_0^2$

2) Test of goodness of fit

3) Testing independence of attributes.

Unit -IV Applications of t & F – Distributions **(18)**

Definition of t & F variates & their p.d.f.'s

Applications of t distribution

1) Testing H0 : M = M0

2) Testing H0 : M1 = M2

Applications of F Distribution

1) To Test H0: $\sigma_1^2 = \sigma_2^2$

2) To Test equality of means of several populations

Example based on these

Reference books :

1) Fundamentals of applied statistics by Gupta & Kapoor.

2) Statistical Methods by J.Medhi

3) Fundamentals Mathe. Statistics by Gupta & Kapoor.

4) Introduction to Mathe. Statistics by D.N.Elance.

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Semester Pattern New Syllabus

B.Com.III Semester VI

(Optional) - Paper - II

ADVANCED STATISTICS

(w.e.f. June 2015)

Unit-I LINEAR PROGRAMMING PROBLEMS **(15)**

Introduction, concept, Mathematical formulation of the Problem. Solution by using graphical method & Examples based on it.

Unit-II ASSIGNMENT PROBLEMS **(15)**

Assignment Problems for minimization, introduction, Mathematical formulation Hungarian algorithm, Examples on A.P.

Unit-III TRANSPORTATION PROBLEMS **(15)**

Transportation Problems for minimization, introduction, methods of finding I.B.F.S., testing solution for optimality, Examples on T.P.

Unit-IV SEQUENCING **(15)**

Introduction, Assumptions, problem of sequencing of n jobs through 2 machines, n jobs through 3 machines, n jobs through M machines, actual Examples on this.

Reference books :

1) A text book of Operations Research by S.D. Sharma

2) Quantitative techniques in decision making by J.K. Sharma

3) A text book of Operations Research by R.K. Gupta.

4) A text book of Operations Research by Kantiswaroop