SEMESTER III

 (Marks 100 – 75 Lectures)

OBJECTIVES:

To enable the students to gain understanding of statistical techniques as are applicable to business.

To give comprehensive knowledge of the subject to the students opting for professional and academic course where statistics is a part of the curriculum.

1. INTRODUCTION: (4 Marks -5 Letures)

 Meaning and definition of statistics.

 Function, Scope and Limitation of statistics.

Basic statistical Concepts- Population, Sample, Variable, Attribute, Parameter and statistic.

2.COLLECTION OF DATA: (8 Marks-5Letures)

Types of Data- primary & secondary data.

Sources ,Methods of collecting primary data.

Clasiffication-Univariate frequency distribution,

Bi-variate frequency distribution.

 3.GRAPHS AND DIAGRAMS: (12 Marks-10Letures)

Histogram

 Frequency polygon

Frequency curve and Ogives

 Simple Bar, Multiple and sub divided bar, pie diagrams.

IV. SUMMARISATION MEASURES: (40 Marks-30Letures)

Measures of Central Tendency- Meaning, Objectives

 Requisites of a good average

Arithmetic Mean, Median Mode (Without grouping) – Geometric Mean, Harmonic Mean

Partition values-Quartiles, Deciles, And Percentiles.

Measure of Dispersion – Meaning, Objectives

Requisites of a good Measure of Dispersion-

Absolute and relative measures

Range, Quartile deviation, Mean Deviation, Standard deviation,

Coefficient of range, Coefficient of Quartile deviation, Coefficient of Mean deviation and Coefficient of Variation.

 Skewness –Meaning

Karl Person’s and Bowley’s measures of skewness and coefficient of skewness.

Notion of Kurtosis.

V. INDEX NUMBERS: (18 Marks-15Letures)

 Meaning

 Types, uses and limitation

 Methods of constructing price and quantity index numbers by unweighted and weighted methods

Weighted Agrregative – Laspeyre’s, Paasche’s and Fishers’s formulae

Weighted average of relatives - Arthmetic Mean and Geometric Mean

 Value index number –

Fixed base, chain base indices, Base shifting,

Deflating and splicing,

Cost of living index numbers.

VI. ANALYSIS OF TIME SERIES: (18 Marks-10Letures)

Meaning and utility

Components of time series

Models of Time series – Additive and Multiplicative models.

 Measurement of Trend – semi averages, moving averages and methods of least squares (Straight line and second degree parabola).

Books for Study and Reference:

Gupta S.P

Statistical Methods, Sultan Chand and Sons

Sancheti D.C. and Kapoor V.K

 Statistics (Theory, methods and Application) Sultan Chand and Sons

Levin Richard I and Rubin David S.

 Statistics for Management, Prentice Hall of India

Gupta C.B

 Fundamental of Statistics, Himalaya Publishing House

R.J.Shah

 Statistical Techniques.

Neeta Mazumdar

 Statistical Techniques Rajhauns Vitaran,

SEMESTER IV

 (Marks 100)

CORRELATION AND REGRESSION ANALYSIS : (30 MARKS-18 LECTURES)

Meaning and types of correlation

methods of studying correlation.

 Scatter diagrams,

Karl Person’s coefficient of correlation

Spearman’s rank coefficient of correlation,

Properties of Karl Person’s coefficient of correlation.

Linear regression – meaning

Regression lines and regression confidents.

II . ELEMENTS OF PROBABILITY : (18 MARKS-16 LECTURES)

Random experiments and events

definition of probability

Conditional probability.

Addition and multiplication theorems (with proof).

Mathematical expectation.

III. THEORITICAL DISTRIBUTION : (18 MARKS-12 LECTURES)

Random Variable.

Binomial ,Poisson and Normal distribution (with properties)

IV .METHODS OF SAMPLING : (4 MARKS- 4 LECTURES)

Census enumeration and sample enumeration.

 Methods of sampling-

Simple random sampling, Systematic sampling, Stratified sampling, Cluster sampling, Purposive sampling, Quota sampling and Multi – stage sampling.

V .TESTS OF HYPOTHESIS AND ESTIMATION : (12 MARKS-15 LECTURES)

Sampling distribution.

Standard error,

Procedure of testing a hypothesis.

Null and Alternative hypothesis.

 Type I & Type II errors.

Critical region and level of significance.

Test of significance for large samples.

Sample mean and sample proportion-

confidence limits

population mean and population proportion

VI. STATISTICAL QUALITY CONTROL: (18 MARKS-10 LECTURES-)

Meaning and Utility,

 Control charts for X,R,P&C

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