RAYALASEEMA UNIVERSITY, KURNOOL
CBCS SYLLABUS (Semester wise) 2020-2021
I YEAR: Semester – I STATISTICS SYLLABUS
PAPER – I: DESCRIPTIVE STATISTICS & PROBABILITY
(B.Sc / B.A with Mathematics Combination)

Unit - I
Introduction: Concepts of Primary and Secondary data. Methods of Collection and editing of Primary data. Designing a questionnaire and a schedule. Diagrammatic and graphical representation of data: Histogram, frequency polygon, Ogive, Pie chart.
Measures of Central Tendency: Mean, Median, Mode, Geometric Mean and Harmonic Mean.

Unit - II
Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Variance & Coefficient of Variation with simple applications. Central and Non-Central moments and their interrelationships. Sheppard's correction for moments for grouped data. Skewness and Kurtosis.

Unit - III
Probability: Basic concepts - Random Experiments, trial, outcome, sample space, event, mutually exclusive and exhaustive events, equally likely and favorable outcomes with examples. Definitions of probability - Mathematical, Statistical and Axiomatic. Conditional probability and independence of events. Addition and multiplication theorems of Probability for 2 and n events. Boole's inequality, Bayes' theorem and Problems based on Bayes theorem. Probability examples (simple problems).

Unit-IV
Definition of Random variable: Discrete and Continuous random variables, Functions of random variables. Probability mass function, Probability density function and Distribution function and its properties. Bivariate random variables – Meaning, Joint, marginal and conditional distributions. Independence of random variables and simple problems.

Unit-V
Mathematical Expectation: Mathematical expectation of a random variable and function of a random variable. Moments and covariance using mathematical expectation with examples. Addition and multiplication theorems on expectation. Definitions of M.G.F, C.G.F, C.F and statement of their properties with applications. Chebychev's and Cauchy-Schwartz's inequalities.

Practical – Semester – I
1. Sub Divided and Percentage Bar Diagrams
2. Pie or circular Diagrams(for two graphs)
3. Construction of Histogram and frequency polygon
4. Construction of Ogive curves
5. Calculation of Mean, Median and Mode
6. Calculation of Geometric Mean and Harmonic Mean.
7. Calculation of Quartile Deviation and Mean Deviation
8. Standard Deviation and Coefficient of Variation
9. Baye's Theorem.
10. Central and Non Central moments.
11. Sheppard's correction for moments.
12. Measures of Skewness (SKP and SKB).
13. β and γ Coefficients.
14. MS – Excel methods for the above Serial Numbers 1, 2, 3, 4, 5, 6, 7 and 11.

List of reference books:
- INTRODUCTION TO PROBABILITY – Charles M. Grinstead, J. Laurie Snell
- FUNDAMENTALS OF MATHEMATICAL STATISTICS – V.K. Kapoor and S.C. Gupta
- FUNDAMENTALS OF STATISTICS – Goon Gupta and Das Gupta
- Probability and Statistical Inferences 7th edition Pearson – Hoog. Taims Rao
- Mathematical Statistics – Dr. OP Gupta & Dr. V. Sharma – Hedar Nath Ram Nath Publications.