

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS FOR SCREENING TEST FOR THE POST OF STATISTICAL OFFICER, ECONOMICS AND STATISTICS DEPARTMENT

Collection, Classification, Tabulation and Diagrammatic Presentation of data. Measures of Central Tendency, Dispersion, Moments, Skewness and Kurtosis.

Correlation and Regression : Karl Pearson and Rank correlation coefficients, Regression lines, Multiple and Partial Co-relation.

Classical and Axiomatic approaches of probability, Conditional Probability and Baye's theorem, Random variable and Mathematical expectation with application.

Probability Distributions : Binomial, Poisson, Rectangular, Exponential and Normal Distribution with properties and applications.

Theory of Estimation : Point and Interval estimates, Properties of estimates, Methods of Estimation – Least Squares & Maximum Likelihood estimates.

Sampling Distributions : Chi-squares, t and F Distributions.

Testing of Hypothesis : Concept of Hypothesis, Types of error in testing, Critical Region and level of significance, one and two tailed tests based on small and large samples.

Non-parametric Tests : Run, Sign Median Tests.

Design of Sample Survey: Sampling Unit, Sampling frame, Sampling fraction, Sampling with and without replacement, Population Parameter & Sample estimator, efficiency, accuracy and precision, Simple random sampling, Probability Proportion to Size with replacement, Sampling with varying probability and without replacement, stratified random sampling, systematic sampling, cluster sampling, multistage sampling, ratio and regression method of estimation.

Design of Experiments : Analysis of variance for one way and two way classified data, Principles of Designs, Completely Randomised Designs, Randomised Block Designs, Latin Square Designs, 2^n & 3^2 factorial experiments, Split plot and Strip plot Design, BIBD, Complete and Partial confounding.

Multivariate Normal Distribution, Hotellings T^2 and Discriminant Analysis.

Time Series Analysis : Components, Measurements of Trend, Seasonal & Cyclical variations.

Index Number: Uses, types and limitations of index numbers, construction of index numbers, simple and weighted Aggregate method, Simple and weighted average price-relatives, Chain base index numbers, Base shifting, Splicing and Deflating of Index numbers, Cost of Living index numbers.

Econometrics : Assumptions of error term in econometric models, Problems of Multi Collinearity, Auto-correlation, and heteroscedasticity.

Vital Statistics: Collection and Calculation of vital statistics- Measures of Mortality and Fertility rates, life table, Population growth.

Economic Concepts : Law of Demand and Supply, Concept of elasticity, Demand forecasting, Price determination under different markets, National Income, Economic Progress after reforms.

Statistical Organization in India: CSO, NSSO, Population Census, Livestock Census, Agricultural Census, Agricultural Livestock-Forest- Fishery-Mining- Industrial-Labour and Financial Statistics, Import-Export Statistics, National Income Statistics.

Main features of Rajasthan Economy – Natural Resources, Agriculture, Industry, Finance, Livestock and Tourism Development.

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Pattern of Question Papers :

- 1 Objective Type Paper.
- 2 Maximum Marks : 100
- 3 Number of Questions : 100
- 4 Duration of Paper : Two Hours.
- 5 All Questions carry equal marks.
- 6 There will be **Negative Marking**.

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