RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS FOR THE POST OF ASSISTANT STATISTICAL OFFICER (AGRICULTURE DEPARTMENT)

(1) Classification, tabulation and frequency distribution.

(2) Diagramatic and Graphical Representation: Bar diagram, Pie chart, histogram, frequency polygon, frequency curve.

(3) Measures of central tendency: Arithmetic mean, geometric mean, harmonic mean, median, mode, quartiles, deciles and percentiles.

(4) Measurers of Dispersion, Skewness & Kurtosis: Range, quartile deviation, mean deviation standard deviation, variance, co-efficient of variation, moments, measures of skewness and kurtosis.

(5) Elementary Probability: Classical and statistical definition of probability, addition and multiplication theorems of probability, conditional probability and Baye's theorem.

(6) Random variables, Mathematical expectation and Probability distributions: Probability mass function, Probability density function and their properties. Concept of moment generating function, cumulant generating function and characteristic function. Discrete probability distributions: Bernoulli, binomial, Poisson, negative binomial, geometric and hyper geometric. Continuous probability distributions: Rectangular, normal, gamma and beta type one and type two and cauchy. Sampling distributions: Chi-square, t-distribution, F-distribution and their applications.

(7) Correlation and Regression: Karl- Pearson's co-efficient of correlation and Speareman's rank correlation co-efficient, simple linear regression, method of least squares.

(8) Sampling methods: Simple random sampling with and without replacement, stratified random sampling, cluster sampling, systematic sampling, sampling for proportions.

(9) Experimental Design: Concept of analysis of variance (ANOVA) for one way and two way classified data, transformation of data, uniformity trials, principles of design of experiments. Completely randomised design (CRD), Randomised block

design (RBD), Latin square design (LSD), missing plot technique, 2^2 & 2^3 factorial experiments in RBD, complete and partial confounding.

(10) Time Series: Components , measurement of trend, measurement of seasonal variations, problem of autocorrelation and its remedies.

(11) Theory of estimation and Testing of Hypotheses: Point and interval estimation, properties of estimators, methods of estimation-method of least squares and maximum likelihood estimation. Confidence internal and confidence limits. Concept of hypotheses, types of errors, Neyman- Pearson's lemma, parametric tests for large and small samples. Non-parametric tests- run, sign and median.

(12) Agriculture Statistics and Statistical Organisations in India: Importance of agriculture statistics, agricultural statistical systems in India, Agricultural census, Livestock census, Agriculture survey, National Agricultural production Index, CSO, NSSO and National Income.

(13) Statistical Genetics: Physical basis in inheritance, analysis of segregation, detection and estimation of linkage for qualitative characters, genetic variance and its partitioning, correlation between relatives heritability, repeatability and genetic correlation.

(14) Interpolation, Extrapolation and Numerical Integration: Finite differences, divided differences, Newton's forward and backward interpolation , Newton's divided difference interpolation & Lagrange's interpolation. Simpson's 1/3rd and 3/8 th rule of numerical integration.

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Pattern of Question Paper:

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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