

21. APPLIED STATISTICS, Pt-II, 2021

Marks Scheme

Name of Paper	Nomenclature	Marks		No. of hours per week
		Science	Arts	
Paper I	Statistical Inference	50 mark	65 marks	3 hours
Paper II	Statistical Applications in Society and Industry	50 mark	65 marks	3 hours
Paper III	Practical based on Paper I, II	50 mark	70 marks	4 hours
Total		150	200	10 hours

Note: In each Question paper, 10 (ten) questions will be set having 2 (Two) from each unit. Candidates have to answer five questions in all, taking not more than one from each unit.

Subject : Applied Statistics

Paper I (Statistical Inference)

Unit-I

Sampling from a distribution : Concept of statistic and its sampling distribution. Sampling distribution for mean of Binomial, Poisson and Normal Distribution. Chi-square Distribution. Moments. C.G.F. M.G.F.

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proof) Applications.-Testing Normal Population variance, Test for Goodness of fit; Contingency Table & Independence of attributes. Yates's correction. 18 hours

Unit-II

t-Distribution : Definition of Student's -t & Fisher's -t Statistic. Property and Applications of t-distribution for testing-Single mean, difference of two means, observed sample correlation coefficient Paired t-test., F-Distribution : Definition, Mean, Variance & mode. Application of F distribution- Testing of equality of two variances. Relationship between t, F and Chi-square Distributions. without proof. 18 hours

Unit-III

Theory of Estimation: Point Estimation- Problems for Point Estimation; Criterion of a good estimator (Unbiasedness, Consistency, Efficiency, Sufficiency). MVUE. Method of moments. Methods of Maximum likelihood Interval Estimation-. Confidence Interval for mean, variance, difference of means and ratio of variances for normal populations. 18 hours

Unit-IV

Testing of Hypothesis: Simple, Composite, Null and Alternative Hypothesis. Types of error. Critical region. BCR, Neyman-Person's Lemma (statement only) and its application. BCR in case of Binomial, Poisson, and Normal Population. 18 hours

Unit-V

Large sample test-Testing of single mean, proportion. Testing of difference of means and proportions. Non-Parametric Tests-Definition, Merits & Limitations. Sign test for one sample and two sample cases. Run Test. Median test. 18 hours

REFERENCES:

1. Goon A.M Gupta M.K., Das Gupta B. (1991): Fundamentals of Statistics, Vol.1. World Press, Calcutta.
2. Hodges J.L. and Lehman E.L. (1964): Basic Concepts of Probability and statistics, Holden Day
3. Mood A.M., Graybill F.A. and Boes D.C. (1974): Introduction to the Theory of Statistics, Mc Gray Hill
4. Freund J.E. (2001): Mathematical Statistics, Prentice Hall of India.
5. S.C. Gupta & V.K. Kapoor, Fundamentals of Mathematical Statistics, Sultan Chand and sons, New Delhi

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ADDITIONAL REFERENCES:

1. Bhatt B.R. Srivenkatramana T and Rao Madhava K.S. (1967):
Statistics: A Beginner's Text. Vol. II New Age International (P)
Ltd.
2. Rohatgi V.K, (1967) An Introduction to Probability Theory and
Mathematical Statistics, John Wiley & Sons.
3. Snedecor G.W. and Cochran W.G. (1967): Statistical Methods.
Iowa State University Press.
4. E.J. Dudewicz & S.N. Misra: Modern Mathematical Statistics
John Wiley and Sons.

Subject : Applied Statistics

Paper II

**STATISTICAL APPLICATIONS (STATISTICAL APPLICATIONS IN
SOCIETY AND INDUSTRY)**

~~Courses contents are same as that of subject statistics.~~

PAPER III

Practical Paper

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