

**MODEL QUESTION PAPER**

**MODIFIED MODEL PAPER**

**I YEAR B.A/B.Sc STATISTICS (With Mathematics Combination)**

**PAPER – II MATHEMATICAL EXPECTATIONS AND PROBABILITY**

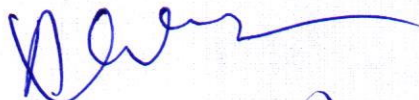
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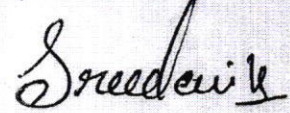
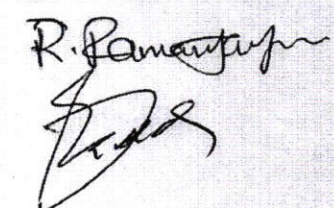
**SEMESTER – II**

Answer any **FIVE** questions. Each question carries equal marks. (5 x 15 =75Marks)

1. (a) Define mathematical expectation and write properties of expectation.  
(b) State and prove Cauchy – Schwartz inequality.
2. (a) Explain Moment Generating function and its properties.  
(b) State and prove Chebychev's inequality.
3. Define Binomial Distribution. Find the first 4 central moments of Binomial distribution.
4. Define Poisson distribution and derive recurrence relation formula for moments.
5. Find the M.G.F. of Negative binomial distribution and also show that Negative binomial distribution is a limiting case of Poisson distribution.
6. Explain Hyper Geometric Distribution and find its mean and variance.
7. Find the C.G.F of Rectangular Distribution and also find variance of Beta Distribution of 1<sup>st</sup> kind.
8. Define Exponential Distribution and its properties.
9. Derive M.G.F., Additive property and applications of Normal Distribution.
10. Define Cauchy distribution and derive its characteristic function.

**Note: Compulsory should give 2 questions from each unit.**

  
C. Dr. N. Viswanath  
Chairman, Board of Studies

Members  
  
Sreedev  
  
R. Ramakrishna

NO. 1000 (REV. 1-1-64)

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**MODIFIED** MODEL QUESTION PAPER  
**STATISTICS**  
(with mathematics combination)  
Common to B.A./B.Sc.

**SEMESTER – IV**


**PAPER – IV: STATISTICAL INFERENCE**

Answer any **FIVE** of the following.

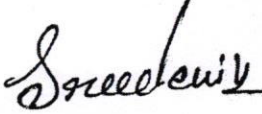

**5 x 15 = 75**

1. Explain the characteristics of a good estimator.
2. State and prove Cramer – Rao inequality.
3. State and prove Neymann – Pearson lemma.
4. Explain the terms (a) Null and Alternative hypothesis (ii) Critical region and (iii) Type-1 and Type-2 errors.
5. Explain the test procedure to test the significant difference between two standard deviations for large samples.
6. Explain Fisher's Z - transformation.
7. Explain t – test to test the significant difference between two means.
8. Explain chi – square test for independence of attributes.
9. Distinguish between parametric and non – parametric tests.
10. Explain median test.

**Note: Compulsory TWO questions from each unit.**

  
(Dr. N. VISWAN)  
Chairman, Board of Studies

Members

  
R Ranganathan  


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Very truly yours,

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(S. [Name])

Special Agent in Charge

(S. [Name])

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