

**ADIKAVI NANNAYA UNIVERSITY**  
**RAJAMAHENDRAVARAM**  
**CBCS / Semester System**  
**(From 2015-16 Admitted Batch)**  
**B.A./B.Sc. STATISTICS**  
**III SEMESTER**  
**MODEL QUESTION PAPER**  
**(For Mathematics Combination)**  
**STATISTICAL METHODS**

Time: 3 hrs.

Max. Marks: 75

(Candidates are permitted to use Non-Programmable Calculators)

\*This Paper Consists of Two sections.

**SECTION-A**

5 x 5 = 25 Marks

Answer any FIVE Questions. Each question carries equal marks

1. Define Correlation. Explain the types of Correlation.
2. Explain the difference between correlation and regression.
3. Explain fitting of exponential curve.
4. Explain the independence of attributes.
5. Define the following
  - (a) Parameter
  - (b) Statistic
  - (c) Standard Error
6. Examine the consistency of the following data:  
N=1000, (A) =525, (B) =312, (C) =470, (AB) =42, (BC) =86, (AC) =147 and (ABC) =25
7. Compute Spearman's Rank correlation coefficient for the following data.  
X: 20 14 36 29 5 11  
Y: 15 9 25 10 2 6

8. Find two regression lines for the following values.

Mean of A=39.5, Mean of B=47.5

Standard Deviation of A = 10.8, Standard Deviation of B=16.8

Correlation Coefficient between A and B = 0.42

**SECTION - B**

5 x 10 = 50 Marks

Answer all the questions, each question carries TEN marks

9. (a) Define Correlation Coefficient. State and prove its properties.

(Or)

(b) Derive Spearman's rank correlation coefficient.

10. (a) Define regression coefficients. State and prove its properties.

(Or)

(b) Explain partial and multiple correlation coefficients.

11. (a) How do you fit a second degree parabola using the principle of least Squares?

(Or)

(b) Explain fitting of power curves.

12. (a) Derive the relation between  $Q_{AB}$  and Y.

(Or)

(b) Explain the conditions for consistency for three attributes.

13. (a) What are  $\chi^2$ , t and F- distributions? Give their properties?

(Or)

(b) Derive the relationship F and  $\chi^2$  distributions.

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