

Research Methodology: MA4207

Full Marks: 50

April 2019

1. Write down the followings in latex.

[4 × 5]

- (a) This table uses multicol package.

Table 1: Table 1

Land Utilisation Pattern in India		
Item	Area (million hectares)	percentage
Total geographical area	329	100
Total reporting area	305	93

- (b) The following equation uses amsmath and amssymb packages.

$$X_1(t) = \sum_{j=1}^p A_{11,j} X_1(t-j) + \sum_{j=1}^p A_{12,j} X_2(t-j) + E_1(t),$$

and

$$X_2(t) = \sum_{j=1}^p A_{21,j} X_1(t-j) + \sum_{j=1}^p A_{22,j} X_2(t-j) + E_1(t) + E_2(t).$$

- (c) This is a matrix equation.

$$H_2 H_1 A = \begin{pmatrix} r_{11} & r_{12} & r_{13} & \cdots & r_{1p} \\ 0 & r_{22} & r_{23} & \cdots & r_{2p} \\ 0 & 0 & & & \\ \vdots & \vdots & & A_2 & \\ 0 & 0 & & & \end{pmatrix}$$

- (d) You may use “cases” to write down the following.

$$g(y, \lambda) = \begin{cases} \text{sign}(y) \{ (|y| + 1)^\lambda - 1 \} / \lambda, & \text{if } \lambda \neq 0, \\ \text{sign}(y) \log(|y| + 1), & \text{if } \lambda = 0. \end{cases}$$

2. Write down an ^{essay} on any one of the following topic.

[15]

“Mathematics is a science.” OR “Statistics is a branch of applied Mathematics.”

3. Write down a research proposal of your interest.

[15]

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