



KERALA AGRICULTURAL UNIVERSITY
B.Sc. (Hons.) C&B 2017 and previous admissions
IV Semester Final Examination- July-2019

Stat.2203

Quantitative Techniques (2+1)

Marks: 50
Time: 2 hours

I Fill in the blanks

(10x1=10)

- 1 The standard error of a sample mean is given by the formula
- 2 When the population is we go for stratified sampling procedure.
- 3 In Linear Programming problem, the conditions $x \geq 0$ and $y \geq 0$ are called
- 4 The error made when a true hypothesis is rejected is
- 5 The equation for second degree parabola is
- 6 The standard method for studying long term trend is
- 7 The trend of economic activity can be studied with the help of
- 8 In Control charts we establish limits.

State True or False

- 9 If p-value is less than the level of significance (α) null hypothesis (H_0) is rejected.
- 10 The objective function is maximized if it represent cost.

II Write short notes on ANY FIVE of the following

(5x2=10)

- 1 Distinguish between cluster and stratum.
- 2 Type one error and type two error.
- 3 Difference between feasible solution and basic solution.
- 4 Non sampling error.
- 5 Define parameter and statistic.
- 6 Write test statistic for testing mean in the case of a large one sample group.
- 7 Mention the control charts used for qualitative and quantitative data.

III Answer ANY FIVE of the following

(5x4=20)

- 1 Mathematical models for a time series analysis
- 2 Steps involved in testing of hypothesis.
- 3 Tests to be satisfied by ideal index numbers.
- 4 Degeneracy in Linear Programming.
- 5 Paired t-test.
- 6 Link relative method to measure seasonality of time series.
- 7 Write down the test statistic for the following situations, by setting up the hypothesis, indicating notations
 - a To test the equality of two means, when variances are equal, in small sample case.
 - b To test the equality of two proportion in the large sample case.

P T O

IV**Write an essay on ANY ONE of the following****(1x10=10)**

- 1 Explain χ^2 test for testing goodness of fit and also for testing the independence of two attributes.
- 2 Solve the following linear programming problem using Simplex method:-
Maximize $Z = 3x_1 + 5x_2 + 4x_3$

$$\text{Subject to constraints } \begin{cases} 2x_1 + 3x_2 \leq 8 \\ 2x_2 + 5x_3 \leq 10 \\ 3x_1 + 2x_2 + 4x_3 \leq 15 \\ x_1, x_2, x_3 \geq 0 \end{cases}$$
