



Reg. No. : .....

Name : .....

First Semester M.A. Degree (CBSS – Reg./Suppl.(Including Mercy Chance)/Imp.) Examination, October 2020 (2014 Admission Onwards)

ECONOMICS/APPLIED ECONOMICS/DEVELOPMENT ECONOMICS

ECO 1C03 : Quantitative Techniques for Economic Analysis

Time : 3 Hours

Max. Marks : 60

PART – A

Answer all questions. All questions carry equal marks.

- A confidence interval consists of
  - A) A confidence level
  - B) A statistic
  - C) A margin of error
  - D) All the above
- Power of a hypothesis test is the probability of
  - A) Committing a type I error
  - B) Committing a type II error
  - C) Not committing a type I error
  - D) Not committing a type II error
- The statistical test used to determine whether two population means are different when the variances are known and the sample size is large is called
  - A) Chi-square test
  - B) Z-test
  - C) One tailed test
  - D) None of these
- Poisson distribution exhibits the characteristic feature
  - A) Mean = standard deviation
  - B) Mean = variance
  - C) Variance = coefficient of skewness
  - D) Variance = coefficient of kurtosis
- Which one of the following is not a distribution free test ?
  - A) Kruskal-Wallis test
  - B) Student's t test
  - C) Fisher-Irwin test
  - D) Wilcoxon test



6. Two matrices A and B are multiplied to get AB if
- Both are rectangular
  - Both have same order
  - Number of columns of A is equal to columns of B
  - Number of rows of A is equal to number of columns of B
7. If  $|A| = 0$ , then A is
- Zero matrix
  - Singular matrix
  - Non-singular matrix
  - 0
8. What is the probability of getting a sum 9 from two throws of a dice ?
- 1/6
  - 1/8
  - 1/9
  - 1/12
- (8×½=4)**

## PART – B

Answer **any eight** questions. No answer should exceed **one** page.

- Distinguish between type I and type II error.
- Define scalar matrix.
- Bring out relation between symmetric matrix and skew symmetric matrix using suitable example.
- Define total sum of squares.
- Write a short note on estimation theory.
- What is an alternative hypothesis ?
- Distinguish between upper triangular matrix and lower triangular matrix.
- What do you mean by log-normal distribution ?
- Distinguish between parameter and statistic.
- A pair of dice is thrown. Find the probability of obtaining a sum of 8 or getting an even number on both the dice.
- What do you mean by research methodology ? **(8×2=16)**



## PART – C

Answer **any four** questions. No answer should exceed **2½** pages.

- Differentiate between point estimate and interval estimate.
- Define rank of a matrix. Determine the rank of the given matrix.

$$A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 3 & 1 \\ 1 & 1 & 2 \end{bmatrix}$$

- Explain ANOVA in regression.
- What is meant by *t distribution* ? How *t-test* is used in hypothesis testing of regression coefficients ?
- Differentiate between minor and cofactor of a matrix. Give suitable example.
- Examine the significance of Bayes' theorem. **(4×5=20)**

## PART – D

Answer **any two** questions. No answer should exceed **6** pages.

- Solve the following simultaneous equations using Cramer's rule :

$$5x - 6y + 4z = 15$$

$$7x + 4y - 3z = 19$$

$$2x + y + 6z = 46$$

- What is a normal distribution ? Illustrate the properties of a normal distribution.
- Discuss different types of sampling in research.
- A researcher had heard that colour blindness is related to gender in certain populations. He collected samples of 1000 people in a village, of which 480 are males and 520 are females. In the sample 38 males and 6 females have colour blindness. Using the above information prepare the contingency table and test whether colour blindness is dependent or independent of gender. **(2×10=20)**