K21P 0443

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

Max. Marks : 60

Time : 3 Hours

PART – A

Answer **all** questions. **All** questions carry **equal** marks.

1. A confidence interval consists of
   A) A confidence level
   B) A statistic
   C) A margin of error
   D) All the above

2. 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

3. 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

4. Poisson distribution exhibits the characteristic feature
   A) Mean = standard deviation
   B) Mean = variance
   C) Variance = coefficient of skewness
   D) Variance = coefficient of kurtosis

5. 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

P.T.O.

6. Two matrices A and B are multiplied to get AB if
   A) Both are rectangular
   B) Both have same order
   C) Number of columns of A is equal to columns of B
   D) Number of rows of A is equal to number of columns of B

7. If $|A| = 0$, then A is
   A) Zero matrix
   B) Singular matrix
   C) Non-singular matrix
   D) 0

8. What is the probability of getting a sum 9 from two throws of a dice ?
   A) 1/6
   B) 1/8
   C) 1/9
   D) 1/12

(8×½=4)

PART – B

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

9. Distinguish between type I and type II error.

10. Define scalar matrix.

11. Bring out relation between symmetric matrix and skew symmetric matrix using suitable example.

12. Define total sum of squares.

13. Write a short note on estimation theory.

14. What is an alternative hypothesis ?

15. Distinguish between upper triangular matrix and lower triangular matrix.

16. What do you mean by log-normal distribution ?

17. Distinguish between parameter and statistic.

18. A pair of dice is thrown. Find the probability of obtaining a sum of 8 or getting an even number on both the dice.

19. What do you mean by research methodology ?

(8×2=16)

PART – C

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

20. Differentiate between point estimate and interval estimate.

21. Define rank of a matrix. Determine the rank of the given matrix.

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

22. Explain ANOVA in regression.

23. What is meant by *t distribution* ? How *t-test* is used in hypothesis testing of regression coefficients ?

24. Differentiate between minor and cofactor of a matrix. Give suitable example.

25. Examine the significance of Bayes' theorem.

(4×5=20)

PART – D

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

26. Solve the following simultaneous equations using Crammer's rule :

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

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

$2x + y + 6z = 46$

27. What is a normal distribution ? Illustrate the properties of a normal distribution.

28. Discuss different types of sampling in research.

29. 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)