K21P 4113

Reg. No. : .....

Name : .....

I Semester M.A. Degree (CBSS – Reg./Supple./Imp.)
Examination, October 2021
(2018 Admission Onwards)
ECONOMICS/APPLIED ECONOMICS/DEVELOPMENT ECONOMICS
ECO1C03 : Quantitative Techniques for Economic Analysis

Time : 3 Hours Max. Marks : 60

PART – A

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

1. Variance of a binomial variable is always
   A) Less than its mean B) More than its mean
   C) Equal to its mean D) None of the above

2. Which of the following experiments does not have equally likely outcomes ?
   A) Toss a coin
   B) Choose a letter at random from the word SCHOOL
   C) Choose a number at random from 1 to 7
   D) None of the above

3. 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

P.T.O.

4. In case of Poisson distribution,
   A) Mean = standard deviation
   B) Mean = variance
   C) Variance = coefficient of skewness
   D) Variance = coefficient of kurtosis

5. If A is a symmetric matrix, then A^t =
   A) A B) |A|
   C) 0 D) Diagonal matrix

6. 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

7. If $A = \begin{bmatrix} 6+x & 20 \\ 7 & 10+x \end{bmatrix}$ is a singular matrix, what should be the value of x ?
   A) 4 B) 20 C) 10 D) 6

8. A confidence interval consists of
   A) A confidence level B) A statistic
   C) A margin of error D) All the above **(8×½=4)**

PART – B

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

9. Define a rectangular matrix.

10. Write a short note on estimation theory.

11. Determine rank of a matrix. Determine the rank of the given matrix.

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

12. Prepare a note on F distribution.

13. What do you mean by p value ?

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

15. What do you mean by research methodology ?

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

17. What is Type I error ?

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

19. What is meant by point estimate ? **(8×2=16)**

PART – C

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

20. Examine common types of Sampling Errors.

21. Explain Central Limit Theorem.

22. What is the significance of error term in regression ?

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

24. Explain Bayes' theorem.

25. Explain inverse of a matrix. Solve the following equations using matrix method.

$2x - 3y + 5z = 11$

$5x + 2y - 7z = -12$

$-4x + 3y + z = 5$ **(4×5=20)**

PART – D

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

26. "*Scientific research involves a systematic process*" – Substantiate with the help of a suitable research problem.

27. A researcher had heard that color 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 color blindness. Using the above information, prepare the contingency table and test whether color blindness is dependent or independent of gender ?

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

29. Solve the following simultaneous equations using Cramer's rule.

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

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

    $2x + y + 6z = 46$ **(2×10=20)**
