



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)
