

Reg. No. :

Name :

I Semester M.A. Degree (C.B.C.S.S. – O.B.E. – Reg./Supple./Imp.) Examination, October 2024 (2023 Admission Onwards) ECONOMICS/APPLIED ECONOMICS/DEV. ECONOMICS MAACO01C03/MADCO01C03/MAECO01C03 : Quantitative Techniques for Economic Analysis – I

Time : 3 Hours

Short answer question. (5 out of 6) :

- 1. Define determinant.
- 2. State Hawkins-Simon condition.
- 3. Compare permutation and combination.
- 4. What is expectation ?
- 5. What are sampling errors ?
- 6. Define confidence interval.

Short Essay question. (3 out of 5) :

7. The following inter-industry transaction table was constructed for an economy. Construct technology coefficient matrix.

Industry	47	2	Final consumption	Total output			
1	500	1600	R 400	2500			
2	1750	1600	4650	8000			
Labours	250	4800					

8. Solve using Cramer's rule :

2x - 3y = 34x - y = 11

- 9. Write a note on Baye's theorem.
- 10. Compare point and interval estimation.
- 11. Define hypothesis testing. Examine the procedure for testing a hypothesis.

Max. Marks: 60

(5×3=15)

(3×6=18)

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Essay Question. (3 out of 5) :

(3×9=27)

12. Show that the following matrix satisfies Cayley-Hamilton theorem.

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

- 13. It is found that the number of accidents occurring in a factory follows Poisson distribution with a mean of 2 accidents per week. Find the probability that
 - i) No accidents occurs in a week and
 - ii) Number of accidents in a week exceeds 2. (Given $e^{-2} = 0.135$).
- 14. Two random samples were drawn from two normal population and their values are

A :	66	67	75	76	82	84	88	90	92		
В:	64	66	74	78	82	85	87	92	93	95	97

Test whether the two populations have the same variance at 5% level of significance.

 $(F = 3.00 \text{ at } 5\% \text{ level for } V_1 = 8 \text{ and } V_2 = 10)$

- 15. What is estimation ? Explain the properties of an efficient estimator.
- 16. What are sampling distributions ? Examine various sampling distributions with its properties.