

21U243

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Name:

Reg.No:

SECOND SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2022

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U MEC2 C02 - MATHEMATICAL ECONOMICS

(Statistics - Complementary Course)

(2019 Admission onwards)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. Define Inequality in Income.
2. Define chain rule.
3. What is jacobian derivatives?
4. Define concave and convex functions.
5. Explain global maxima and global minima.
6. Explain the constrained optimization.
7. What is complementary slackness condition?
8. What are inequality constraints?
9. What are mixed constraints?
10. Give an example of constrained minimization problem.
11. Give any two uses of input-output model.
12. Mention any three limitations of input-output analysis.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer *all* questions. Each question carries 5 marks.

13. Explain different type of measures of income inequality.
14. Explain the construction of lorenz cuve.

15. Find the second-order partial derivatives for the function $f(x,y)=x^{0.6}y^{0.3}$.
16. Explain the method of least squares analysis in several variables.
17. Discuss about the Khun- Tucker formulation.
18. What is Hawkins-simon conditions? Verify the Hawkins-simon conditions for the following matrix
- $$\begin{bmatrix} 0.8 & 0.2 \\ 0.9 & 0.7 \end{bmatrix}$$
19. Explain the leontief production function.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any *one* question. The question carries 10 marks.

20. i) What do you mean by closed model input-output analysis?
ii) Explain the solution of a open model input-output analysis.
21. In a two industry economy, it is known that industry I uses 10 paise of its own product and 60 paise of commodity II to produce a rupee' worth of commodity I; industry II uses non of its own product but uses 50 paise of commodity I in producing a rupee's worth of commodity II and the open sector demands are Rs. 1000 for commodity I and Rs. 2000 for commodity II.
- a) Write out the input matrix, the technological matrix and the specific input- output matrix equation for this economy.
- b) Find the solution output levels.

(1 × 10 = 10 Marks)
