

21001244



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Reg. No.....

Name.....

**M.Sc. DEGREE (C.S.S.) EXAMINATION, NOVEMBER 2021**

**Fourth Semester**

Faculty of Science

Branch I (A)—Mathematics

MT 04 E 05—MATHEMATICAL ECONOMICS

(2012 to 2018 Admissions—Supplementary/Mercy Chance)

Time : Three Hours

Maximum Weight : 30

**Part A**

*Answer any **five** questions.  
Each question has 1 weight.*

1. State the assumptions of Samuelson's law of demand.
2. Why the indifference curve is sloping downward ?
3. State the procedure's equilibrium condition.
4. State Euler's theorem.
5. Distinguish between cardinal utility and ordinal utility.
6. Distinguish between input and output.
7. Define non-homogenous linear first order difference equation.
8. The Cob-Web model.

(5 × 1 = 5)

**Part B**

*Answer any **five** questions.  
Each question has 2 weight.*

9. Explain the difference equation solution to Cob-Web model.
10. Discuss the lagged Keynesian macro economic model.
11. Explain the limitations of input-output analysis.
12. Describe the properties of isoquants.
13. Discuss the conditions of producer's equilibrium.
14. Discuss the concept of ridge lines and economic region of production.

**Turn over**





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15. Explain indifference curves. What are the properties of indifference curves ?
16. What do you mean by production function ? Distinguish between short run and long run production function.

(5 × 2 = 10)

**Part C**

*Answer any **three** questions.*

*Each question has 5 weight.*

17. (a) Explain the difference equation solution to Cob-Web model. Where  $Q_d = 400 - 20 P_t$  and  $Q_s = -50 + 10 P_t - 1$ .  
(b) Explain the stability conditions of Cob-Web model using the solution of Cob-Web difference equation model.
18. (a) Critically examine the revealed preference theory of demand.  
(b) Explain the superiority of revealed preference theory to the Hicksian ordinal utility analysis.
19. (a) What do you mean by returns of scale ? Explain types of returns to scale.  
(b) Discuss the law of variable properties with three stages of production.
20. (a) Explain consumer's equilibrium using indifference curve analysis.  
(b) Explain the concept of marginal rate of substitution.
21. (a) Discuss the input output analysis.  
(b) If the input-output matrix  $A = \begin{bmatrix} 0.25 & 0.08 \\ 0.33 & 0.11 \end{bmatrix}$  and  $D = \begin{bmatrix} 500 \\ 1000 \end{bmatrix}$ , find the production matrix X.
22. (a) Discuss the steps to find a production matrix.  
(b) Explain the uses of input-output analysis in Economics.

(3 × 5 = 15)

