Reg. No. : ....

Name : ....

Sixth Semester B.A. Degree Examination, April 2022

First Degree Programme under CBCSS

Economics

Elective Course

EC 1661.2 – MATHEMATICAL ECONOMICS

(2019 Admission)

Time : 3 Hours　　　　　　　　　　　　　　　　　　　　Max. Marks : 80

SECTION – I

Answer **all** questions in **one** word to maximum of **two** sentences. **Each** question carries **1** mark.

1. Distinguish between Implicit and explicit function.

2. What is Polynomial function?

3. Distinguish between linear function and non-linear function.

4. Explain the idea of Production function.

5. What is market equilibrium?

6. Explain Delphi method

7. Write the form of Cobb-Douglas production function.

8. What is convexity?

9. What is producer's surplus?

10. What is general equilibrium?

(10 × 1 = 10 Marks)

SECTION – II

Answer any **eight** questions not exceeding one paragraph. **Each** question carries **2** marks.

11. Describe the algebraic function.

12. Describe the characteristics of perfect competition.

13. Distinguish between cardinal utility and ordinal utility.

14. Describe Marginal rate of technical substitution.

15. What is optimization?

16. Write a short note on Consumer's Surplus.

17. Describe various types of functions.

18. Write a short note on static equilibrium.

19. What is Logarithmic function?

20. Write a short note on short run production function.

21. Write a short note on isocost line.

22. What is economic model?

23. Explain the concept of Substitution effect.

24. What is consumer's equilibrium?

25. Explain the main ingredients of mathematical economics.

26. Differentiate $x^5 + ex$.

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(8 × 2 = 16 Marks)
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SECTION – III

Answer any **six** questions not exceeding 120 words. **Each** question carries **4** marks.

27. Describe the important rules of partial differentiation.

28. Explain discriminating monopoly.

29. Explain the conditions for profit maximization.

30. Find the maxima and minima values of $Z = f(x, y) = 8x^3 + 2xy - 3x^2 + y^2 + 1$.

31. Derive the MR function for the demand function $q = 400 - 0.1p$.

32. Explain the significance of Lagrange multiplier.

33. Explain various methods of demand forecasting.

34. Explain consumer's equilibrium in a mathematical version

35. Discuss the marginal concepts in economic analysis.

36. Find the f_1 and f_2 in the given $y = f(x_1, x_2) = x_1^3 + 2x_1 x_2^2 + 3x_2^3$.

37. Briefly explain the uses of derivatives in Economics.

38. Given the supply function $P = (Q + 3)^2$, find the producer's surplus PS at $P_0 = 81$ and $Q_0 = 6$.

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(6 × 4 = 24 Marks)
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SECTION – IV

Answer any **two** questions not exceeding four pages. **Each** question carries **15** marks.

39. Discuss the derivation of cost function from a production function.

40. Write a short note on Linear Programming.

41. A firm produces two goods, with output levels q_1 and q_2 and faces the total cost function. $TC = 45 + 125q_1 + 84q_2 + 6q_1^2q_2^2 + 0.8q_1^3 + 1.2q_2^3$. What are the two relevant marginal cost functions?

42. Maximise $y = x_1x_2 + 2x_1$ subject to $x_1 + 2x_2 = 20$. Solve the equations with Lagrange multiplier method.

43. Briefly explain the relationship between TC, AC and MC curves graphically.

44. Explain Slutsky version of decomposition of income and substitution effects

(2 $\times$ 15 = 30 Marks)

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