K24P 1012

Reg. No. : .....

Name : .....

Second Semester M.A. Degree (C.B.C.S.S. – OBE-Regular) Examination, April 2024
(2023 Admission)
ECONOMICS/DEVELOPMENT ECONOMICS/APPLIED ECONOMICS
MAECO02C08/MAACO02C08/MADCO02C08 : Quantitative Techniques for Economic Analysis – II

Time : 3 Hours Max. Marks : 60

SECTION – I

Short Answer Questions **(Any 5)**. **(5×3=15)**

1. Explain the procedure of deriving a dual from a primal LPP.
2. What is constrained optimisation ?
3. Find $\lim_{x \to 3}\left[x^3(2x+5)\right]$.
4. Distinguish the incoming vector and outgoing vector in simplex method.
5. What is a confidence interval and how is it related to hypothesis testing ?
6. Define zero sum game.

SECTION – II

Short Essay Questions **(Any 3)**. **(3×6=18)**

7. If $y = 3x^4 + 6x^2 + 2x + 1$, find $\frac{d^2y}{dx^2}$ at $x = 2$.
8. Explain the basic rules of integration.
9. If $f(x) = \frac{x^3 - 2x^2 - x + 2}{x^2 - 3x + 2}$, examine the continuity at $x = 1$ and $x = 2$.

P.T.O.

10. Given the demand function as $P = 27 - 3x - x^2$ find consumer surplus at $x = 3$.

11. Examine Cooperative games and non-cooperative games.

SECTION – III

Essay Questions **(Any 3)**. **(3×9=27)**

12. Find the maximum profit that a company can make if the profit function is given by $Z = 41 - 24x - 18x^2$.

13. Use simplex method to solve the following LPP.

Maximise, $Z = 3x_1 + 5x_2$

Subject to the constraints,

$x_1 + x_2 \leq 2$

$2x_1 + 5x_2 \leq 10$

$8x_1 + 3x_2 \leq 12$

$x_1, x_2 \geq 0$

14. 10 plots of 1 and are treated with fertilizer A and 12 plots with fertilizer B. The mean yield of the first plot is 6 bushels with a S.D. of 0.03 bushels. The yield of second plots is 5.95 bushels with a S.D. of 0.04 bushels. At 5% level of significance, is there any difference in average yield using different fertilizers ?

15. What are non-parametric tests ? Explain various non-parametric tests with its uses.

16. Consider the following two-person game :

		Player 2	
		L	**R**
Player 1	**U**	1, 2	0, 1
	D	3, 0	x, 1

Assume that both players know the value of x, and both know that they know, and so on.

A) For what values of x (if any) is there a Nash equilibrium in which Player 2 chooses R with probability one ? Explain, and describe the equilibrium or equilibria in different cases.

B) For what values of x (if any) does decision R for Player 2 survive iterated deletion of strictly dominated strategies ? Explain.

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