K19U 0213

Reg. No. : .....

Name : .....

II Semester B.A. Degree (CBCSS-Reg./Supple./Improv.) Examination, April 2019
(2014 Admission Onwards)
COMPLEMENTARY COURSE IN ECONOMICS
2C02 ECO – Mathematics for Economic Analysis – II

Time : 3 Hours

Max. Marks : 40

PART – A

Answer **all** questions. (**Each** question carries **1** mark)

1. A square matrix in which all elements except those in diagonal are zero are called _____
2. The determinant that results when the row and column in which that element lies are deleted is called _____
3. If the upper limit of integration equals the lower limit of integration, the value of the definite integral is _____
4. The area under a graph of a continuous function can be expressed using _____

(4×1=4)

PART – B

Answer **any 7** questions. (**Each** question carries **2** marks)

5. Differentiate singular and non-singular matrices.
6. What is discriminant ?
7. What are the properties of matrix multiplication ?

P.T.O.

8. Define trace of a matrix.

9. What is a quadratic form ? Give an example.

10. $\int (5x^3 + 2x^2 + 3x)\, dx$.

11. Marginal revenue function is given by $MR = 60 - 2Q - 2Q^2$. Find TR function.

12. Give mathematical definition to Consumer's surplus.

13. Find the area beneath the curve $y = x^5$ between $x = 2$ and $x = 3$.

14. What is Eigen values ? **(7×2=14)**

PART – C

Answer **any 4** questions. (**Each** question carries **3** marks)

15. Show that $Q(x) = -2x_1^2 + 2x_1x_2 - 3x_2^2$ is negative definite.

16. Use Gaussian elimination method to solve the following system of linear equations :

$2x_1 + 8x_2 = 34$

$4x_1 + 12x_2 = 56$

17. Determine the rank of the following matrix $\begin{bmatrix} -3 & 6 & 2 \\ 1 & 5 & 4 \\ 4 & -8 & 2 \end{bmatrix}$.

18. Given $Z = 2x_2 + 5xy + 8y_2$, use discriminant to test for definiteness.

19. Evaluate $\int 21x^6 (x^7 + 1)^2\, dx$.

20. Compute total cost for the marginal cost function $C = 2 + 6x - 4x^2$, if total fixed cost is 50. **(4×3=12)**

PART – D

Answer **any 2** questions. (**Each** question carries **5** marks)

21. Write down all the properties of a determinant.

22. Given the supply function $P = (Q + 3)^2$, find the producers' surplus at $P_E = 81$ and $Q_E = 6$.

23. Solve the following linear equations using Crammer's rule

$2x - 3y + 4z = 5$

$x + 2y - 3z = 8$

$x - y - z = 1$

24. Find the inverse of A where $A = \begin{bmatrix} 3 & 5 & 7 \\ 2 & -3 & 1 \\ 1 & 1 & 2 \end{bmatrix}$. **(2×5=10)**
