Reg. No. : .....

Name : .....

K21U 3408

II Semester B.A. Degree (CBCSS – OBE – Reg./Sup./Imp.) Examination, April 2021

(2019 Admission Onwards)

COMPLEMENTARY ELECTIVE COURSE IN ECONOMICS / DEVELOPMENT ECONOMICS

2C02ECO/DEVECO : Mathematics for Economic Analysis – II

Time : 3 Hours

Max. Marks : 40

PART – A

(Answer **all** questions. **Each** carries **one** mark.)

1. What is scalar multiplication ?
2. Differentiate between minors and cofactors.
3. What is singular matrix ?
4. What is rank of a matrix ?
5. Solve $\int 4x^{-2}dx$.
6. What is improper integral ?

(6×1=6)

PART – B

(Answer **any six** questions. **Each** carries **two** marks.)

7. What is an inverse matrix ?
8. What are the economic applications of indefinite integrals ?
9. Mention at least two property of a determinants.
10. What is Laplace expansion ?
11. Mention any two property of definite integral.

P.T.O.

12. Given the Marginal Cost function $f'(x) = 3 + 8x + 15x^2$. Find total cost function.

13. Evaluate the definite integrals : $\int_1^{64} x^{-2/3} dx$.

(6×2=12)

14. What is Eigen value ?

PART – C

(Answer **any four** questions. **Each** carries **three** marks.)

15. Integrate $\int \frac{2x}{(x-8)^3} dx$.

16. What is an inverse ? Explain the properties of inverse.

17. Find the determinant $\begin{bmatrix} 12 & 0 & 3 \\ 9 & 2 & 5 \\ 4 & 6 & 1 \end{bmatrix}$.

18. Explain consumer surplus and producers surplus.

19. Given MC = $16\, e^{0.4Q}$ and Fixed cost = 100. Find the total cost.

20. Find the rank of matrix A if A = $\begin{bmatrix} 5 & -9 & 3 \\ 2 & 12 & -4 \\ -3 & -18 & 6 \end{bmatrix}$.

(4×3=12)

PART – D

(Answer **any two** questions. **Each** carries **five** marks)

21. Using Cramer's rule, solve $2x_1 + 4x_2 - x_3 = 52$, $-x_1 + 5x_2 + 3x_3 = 72$, $3x_1 - 7x_2 + 2x_3 = 10$.

22. Explain economic applications of integrals.

23. What is characteristic vector ? Find the characteristic roots and vectors of the matrix $\begin{bmatrix} 4 & 2 \\ 2 & 1 \end{bmatrix}$.

24. Given the demand function $P_d = 113 - Q^2$ and the supply function $P_s = (Q + 1)^2$. Assuming pure competition, find

a) the consumer's surplus b) the producer's surplus.

(2×5=10)