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 $\int 4x^{-2}dx$.

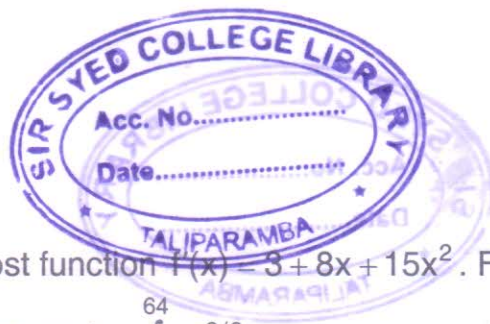6. What is improper integral ?   (6×1=6)

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.

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

13. Evaluate the definite integrals : $\int_{1}^{64} x^{-2/3} dx$.

14. What is Eigen value ?   **(6×2=12)**

PART – C

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

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

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)**