K20U 0408

Reg. No. : .....

Name : .....

II Semester B.A. Degree (CBCSS (OBE)-Regular) Examination, April 2020
(2019 Admission)
Complementary Elective Course in Economics/Development Economics
2C02 ECO/DEV ECO : MATHEMATICS FOR ECONOMIC ANALYSIS – II

Time : 3 Hours

Max. Marks : 40

PART – A

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

1. Define matrix.
2. What is minor ?
3. Differentiate between cofactor and adjoint matrices.
4. Solve $\int x^{-1/5}\, dx$.
5. What is non-singular matrix ?
6. What is the condition of vector multiplication ? **(6×1=6)**

PART – B

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

7. Differentiate between identity and null matrices.
8. What is characteristic vector ?
9. What is consumer surplus ?
10. What is an inverse matrix ?
11. Differentiate between minors and cofactors.
12. What is Gaussian elimination method ?

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13. Evaluate the definite integrals $\int_1^{10} 3x^2 \, dx$. (6×2=12)

14. What is Laplace expansion ?

PART – C

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

15. Integrate $\int 15x(x+4)^{3/2} \, dx$.

16. Explain the properties of definite integrals.

17. Find the determinant $\begin{bmatrix} 3 & 6 & 5 \\ 2 & 1 & 8 \\ 7 & 9 & 1 \end{bmatrix}$.

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

19. Given $MC = 12\, e^{0.5Q}$ and fixed cost = 36. Find the total cost.

20. Find the rank of matrix A if $A = \begin{bmatrix} -3 & 6 & 2 \\ 1 & 5 & 4 \\ 4 & -8 & 2 \end{bmatrix}$. (4×3=12)

PART – D

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

21. Using Cramer's rule, solve $5x_1 - 2x_2 + 3x_3 = 16$, $2x_1 + 3x_2 - 5x_3 = 2$, $4x_1 - 5x_2 + 6x_3 = 7$.

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

23. Explain the economic applications of indefinite integration. Given $MR = 100 - 2q$. Find a) the total revenue function.

24. Under a monopoly, the quantity sold and market price are determined by the demand function. If the demand function for a profit maximising monopolist is $P = 274 - Q^2$ and $MC = 4 + 3Q$. Find consumer surplus.

(2×5=10)