



K23U 1709

Reg. No. : .....

Name : .....

II Semester B.A. Degree (CBCSS – Supplementary) Examination, April 2023  
(2017-2018 Admissions)

COMPLEMENTARY COURSE IN ECONOMICS/DEVELOPMENT  
ECONOMICS

2C02ECO : Mathematics for Economic Analysis – II

Time : 3 Hours

Max. Marks : 40

PART – A

(Answer **all** the 4 questions. **Each** carries 1 mark.)

1.  $\int x^5 dx =$  \_\_\_\_\_
2. If a matrix has 3 rows and 4 columns, then it is a matrix of order \_\_\_\_\_
3.  $(A^T)^T =$  \_\_\_\_\_
4. If A is a 3x4 matrix and B is a 4x5 matrix, then the order of the matrix AB is \_\_\_\_\_ (1x4=4)

PART – B

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

5. Define indefinite integral.
6. Explain the steps for finding  $\int_a^b f(x) dx$ .
7. Explain Producer's surplus.
8.  $A = \begin{bmatrix} 1 & 3 & 2 \\ 2 & 6 & 9 \\ 7 & 6 & 2 \end{bmatrix}$   $B = \begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$  find  $3A - 2B$ .
9. Define Minor of a matrix.
10. Define identity matrix and write an identity matrix of order 4x4.

P.T.O.



11. Define Trace of a matrix.

12. Integrate  $e^{12x} + \frac{1}{x}$ .

13. Write down the expression for integration of a product of the functions U and V.

14.  $A = \begin{bmatrix} 3 & 5 & 7 \\ 2 & 4 & 3 \end{bmatrix}$  and  $B = \begin{bmatrix} 3 & 8 & 9 \\ 4 & 3 & 2 \end{bmatrix}$  S.T  $A^T + B^T = (A+B)^T$ . (7×2=14)

PART – C

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

15. Prove without expanding  $\begin{vmatrix} 25 & 18 & 11 \\ 15 & 14 & 13 \\ 8 & 8 & 8 \end{vmatrix} = 0$ .

16. Check whether the matrix is singular or not ?

$$A = \begin{bmatrix} 1 & 3 & 4 \\ 2 & 6 & 8 \\ 3 & 0 & 3 \end{bmatrix}$$

17. Determine the value of the integral  $\int x^4 \log x \, dx$ .

18. The marginal cost function for some product is  $1 + x + 6x^2$  where  $x$  is the output. Find total cost function, if the fixed cost is Rs. 100, when the output is zero.

19. Define diagonal matrix. Write an example.

20. Find  $A^{-1}$  if  $A = \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$ . (4×3=12)

PART – D

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

21. Solve for  $x$ ,  $y$  and  $z$  from the following set of equations (using  $X = A^{-1}H$ ).

$$x - 2y + 3z = 1$$

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

$$2x + y - 2z = -1.$$



22. i)  $A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix}$  find the transpose of A.

ii) Illustrate any two properties of transpose of a matrix.

23. i) Illustrate with an example.

- a) Power rule.
- b) Exponential rule.
- c) Logarithmic rule.

ii) Write down any two properties of definite integrals.

24. If  $MR = 49 - x^2$ , find the maximum total revenue, also find AR and demand function.

(2×5=10)

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