



K18U 0570

Reg. No. : SP11A12EOR24

Name : Layana Balakrishnan

II Semester B.A. Degree (C.B.C.S.S. – Reg./Supple./Imp.)
Examination, May 2018
COMPLEMENTARY COURSE IN ECONOMICS
2C02 ECO : Mathematics for Economic Analysis II
(2014 Admn. Onwards)

Time : 3 Hours

Max. Marks : 40

PART – A

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

1. $\int x^n dx =$ _____
2. Every element of a determinant has a _____
3. _____ of a matrix is the sum of the elements of the leading diagonals.
4. _____ is reverse process of differentiation. (1×4=4)

PART – B

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

5. Find x and y, if $\begin{bmatrix} 4 & 5 \end{bmatrix} + \begin{bmatrix} x & y \end{bmatrix} = \begin{bmatrix} 7 & 3 \end{bmatrix}$.
6. If the marginal revenue function for output 'q' is given by $MR = \frac{6}{(q+2)^2} - 5$.
Find the demand function. 120 - 20p
7. Explain co-factor of a determinant with an example.
8. What are the rules of integration ?

P.T.O.



✓ 9. Are the following two determinants equal ?

$$\begin{vmatrix} 2 & 4 & 5 \\ 1 & 2 & 3 \\ 0 & 1 & 4 \end{vmatrix} \text{ and } \begin{vmatrix} 4 & 2 & 5 \\ 2 & 1 & 3 \\ 1 & 0 & 4 \end{vmatrix}$$

✓ 10. Define Eigen value.

✓ 11. Integrate $\log x$.

✓ 12. Find the rank of $\begin{bmatrix} 5 & 2 & 1 \\ 0 & 1 & 3 \\ 2 & 1 & 0 \end{bmatrix}$.

✓ 13. Explain consumer surplus.

✓ 14. Explain the properties of definite integrals.

(2×7=14)

PART – C

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

✓ 15. Find the product of $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 1 & 2 \\ -1 & 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 1 & 4 \\ -2 & 3 & 2 \\ 3 & 1 & 1 \end{bmatrix}$.

✓ 16. Explain constraint optimization.

✓ 17. Integrate $(x + 1)^5$.

18. Evaluate $\begin{vmatrix} a^2 & a & 1 \\ b^2 & b & 1 \\ c^2 & c & 1 \end{vmatrix}$.

19. Explain the methods of integration.

✓ 20. Explain five properties of a determinant.

(3×4=12)



PART – D

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

21. The demand function is $D = 250 - 50p$ and supply function is $S = 25p + 25$, calculate equilibrium price. Find consumer's and producer's surplus.

✓ 22. Solve the simultaneous equation using Crammer's rule :

$$2x - 3y + 5z = 11, 5x + 2y - 7z = -12, -4x + 3y + z = 5.$$

23. Find the adjoint of the matrix $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{bmatrix}$ and verify the theorem

$$A(\text{Adj } A) = (\text{Adj } A)A = |A| I.$$

adj A = $\begin{vmatrix} 1 & 1 & 2 \\ 1 & 2 & -1 \\ 2 & -1 & 3 \end{vmatrix}$

24. Integrate $\frac{x}{(x-1)(2x+1)}$.

(5×2=10)
