

K19U 0370



Reg. No. :

Name :

II Semester B.A. Degree (CCSS-Supplementary)

Examination, April 2019

(2012 – 2013 Admissions)

Complementary Course in Economics

2 C02 ECO : MATHEMATICS FOR ECONOMIC ANALYSIS – II

Time : 3 Hours

Max. Weightage : 30

PART – A

Choose the correct answer.

1. Sum of diagonal elements of a matrix gives
a) Rank b) Trace c) Determinant d) None
2. Cost is minimum when
a) $\frac{dc}{dq} = 0$ b) $\frac{d^2c}{dq^2} > 0$ c) both d) any one
3. $\int 3x^2 dx$
a) $x^3 + c$ b) $6x + c$ c) $\frac{3}{2}x^3 + c$ d) none
4. A matrix with non-zero determinant is called
a) Singular matrix b) Non-singular Matrix
c) Idempotent Matrix d) Identity Matrix
(Bunch Weightage 1)
5. $\begin{vmatrix} 1 & 2 \\ 3 & 4 \end{vmatrix}$ is
a) 2 b) -2 c) 0 d) 5

P.T.O.



6. Matrix multiplication is
 a) Commutative b) Distributive c) Associative d) a) and c)

7. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ is
 a) Diagonal matrix b) Identity Matrix
 c) Both d) None

8. $\int 4x^3 - 6$ where $f(0) = 3$
 a) $x^4 - 6x + c$ b) $x^4 - 6x + 3$ c) $12x^2$ d) None

(Bunch Weightage 1)

PART - B

Short answer. Write any 10 questions.

9. Idempotent matrix.
 10. Show that matrix multiplication is distributive.
 11. Explain integration as reverse process of differentiation.
 12. $\int xe^x dx$.
 13. $\begin{vmatrix} 2x & 5 \\ 8 & x \end{vmatrix} = \begin{vmatrix} 6 & 5 \\ 8 & 3 \end{vmatrix}$, find x.
 14. Find the minimum value of the cost function
 $c(x) = 5 + 2x^2 - x^3$.
 15. Verify $|A| = |A^T|$.
 16. Eigen value.
 17. Find total revenue, if Marginal Revenue is $4x$.
 18. Explain producer surplus using the concept of integration.
 19. Explain integration by substitution.

20. $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 0 & 3 \\ 2 & 4 & 6 \end{vmatrix}$. Explain using property of determinant.

(Weightage 1x10=10)



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PART - C

Short Essay. Answer **any five** questions.

21. Uses of integration in economics. (CCSS-Supplementary)

22. Explain properties of determinant. April 2019

23. If $q^d = 100 - 8q$. Find total revenue if $q = 10$. (Economics)

24. Explain the conditions for maxima and minima. Economics

25. $\int \frac{1}{(2 + \log x)x} dx$. MATHEMATICS FOR ECONOMIC ANALYSIS - II

26. Explain the methods of integration. Max. Weightage : 30

27. Show that $A = \begin{bmatrix} 5 & 3 \\ -1 & -2 \end{bmatrix}$ satisfies the equation $A^2 - 3A - 7I = 0$. PART - A

(Weightage 2x5 = 10)

PART - D

Long Essays. Answer **any 2** questions.

28. If $D = 250 - 50P$ and $S = 25P + 25$ are demand and supply functions. Find consumers and producer's surplus.

29. A Manufacturer can sell x items at a price at rupees $\left(5 - \frac{x}{100}\right)$ each. Cost price of x item is Rs. $\left(\frac{x}{5} + 500\right)$. Find the number of items to be sold to maximise profit.

30. Solve the following system of equations. Non-singular Matrix

$$x + y + z = 6$$

$$2y + 5z = -4$$

$$2x + 5y - z = -27$$

31. Using Integration by parts, $\int x^2 \log x dx$

(Weightage 4x2=8)

a) 2

b) -2

c) 0

d) 5

P.T.O.