



M 8645

Reg. No. : .....

Name : .....

**II Semester B.A. Degree (CCSS – Supple./Improv.)**

**Examination, May 2015**

**(2012/13 Admn.)**

**COMPLEMENTARY COURSE IN ECONOMICS**

**2 C02 ECO : Mathematics For Economic Analysis – II**

Time : 3 Hours

Max. Weightage : 30

**Instruction :** Answer may be written either in **English** or in **Malayalam**.

**PART – A**

I. Choose the correct answer.

1. If the rows and columns of a determinant are interchanged, then the determinant value.

- a) Remains the same      b) Sign of the value is changed  
c) Becomes zero      d) None of these

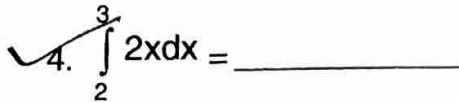
2.  $\begin{vmatrix} a & 0 \\ b & -a \end{vmatrix}$  is

- a)  $ab$       b)  $0$   
c)  $-a^2$       d)  $b$

3. Integration is

- a) Reciprocal of differentiation  
b) Reverse process of differentiation  
c) Deriving the derivatives  
d) Putting together

P.T.O.



✓ 11. If  $A = \begin{bmatrix} 2 & -1 \\ 7 & 3 \end{bmatrix}$ ,  $B = \begin{bmatrix} 0 & 5 \\ -2 & 6 \end{bmatrix}$  then find  $(3A + 7B)$ .

14. If  $MR = 21 - 2x$  find TR when 10 units are sold.



15. Does the system

$$7x_1 - 3x_2 - 3x_3 = 7$$

$$2x_1 + 4x_2 + x_3 = 0$$

$$-2x_2 - x_3 = 2 \text{ Possess an unique solution ?}$$

16.  $\int (x+1)^5 dx.$

$$AB \neq BA.$$

✓ 17. If  $A = \begin{bmatrix} 5 & 3 \\ 0 & 5 \end{bmatrix}$   $B = \begin{bmatrix} -8 & 0 & 7 \\ 1 & 3 & 2 \end{bmatrix}$ , test the commutative law of multiplication of matrices.

✓ 18. Without calculation show that  $\begin{vmatrix} 5 & 7 & 2 \\ 2 & 3 & 1 \\ 10 & 14 & 4 \end{vmatrix} = 0.$

19. Prove that matrix addition is commutative as well as associative.

20. Define rank of a matrix.

(10×1=10)

### PART - C

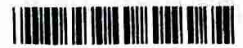
21. P.T  $(A+B)(C+D) = AC + AD + BC + BD$  where A,B,C and D are matrices.

✓ 22. Find :

i)  $C = AB$  and

ii)  $D = BA$  if  $A = \begin{bmatrix} -2 \\ 4 \\ 7 \end{bmatrix}$ ,  $B = \begin{bmatrix} 3 & 6 & 2 \end{bmatrix}$ .  
K3

23. Prove that  $(AB)^T = B^T A^T.$



✓ 24. Find the rank of the matrix  $C = \begin{bmatrix} 7 & 6 & 3 & 3 \\ 0 & 1 & 2 & 1 \\ 8 & 0 & 0 & 8 \end{bmatrix}$ .

from its echelon matrix and comment on the question of non singularity.

25. What is Hawkins Simon condition ?

26. What are the necessary and sufficient conditions for a relative extremum of  $y = f(x)$  ?

27. Integrate  $x^2 e^{3x}$ .

(5×2=10)

#### PART - D

28. Explain about matrix operation.

29. Integrate :

✓ a)  $e^x - \frac{1}{x}$

✓ b)  $x^2 + e^{5x}$

c)  $\frac{\log x}{x}$

d)  $\frac{x+12}{x^2-13x+42}$

30. Explain about basic properties of determinants.

31. Solve the following system of equation applying Crammer's rule.

$$2x - 3y + 5z = 11$$

$$5x + 2y - 7z = -12$$

$$-4x + 3y + z = 5.$$

(2×4=8)