

**Avinashilingam Institute for Home Science and Higher Education for Women**  
**Coimbatore-641 043**  
**Continuous Internal Assessment Test - I (August, 2025)**  
**Semester - I**

**Class : I B.A.**  
**Major : Economics**

**Time: 2 hours**  
**Maximum Mark: 60**

**23BECC02 – Mathematics for Economics**

Course Outcomes

1. Be familiar with the basic concepts in set theory and matrix algebra.
2. Be conversant with the technique of matrix algebra.
3. Know basic rules of differentiation and integration.
4. Comprehend the role of matrix in Economics.
5. Understand the use of derivatives and integration in Economics.

**PART – A**

**6 X 1 =6**

**Circle the correct answer**

1.  $A = \{0\}$  is CO1K1  
 a) an Universal set    b) an infinite set    c) a singleton set    d) a null set
2. If  $A = \{2,7,3\}$  and  $B = \{4,5\}$ ,  $A \cup B = ?$  CO1K3  
 a)  $\{2,7,3\}$     b)  $\{4,5\}$     c)  $U$     d)  $\{2,3,4,5,7\}$
3. If A is a  $3 \times 2$  matrix and B is a  $2 \times 3$  matrix, what is the order of  $AB$ ? CO2K2  
 a)  $2 \times 2$     b)  $3 \times 3$     c)  $2 \times 3$     d)  $3 \times 2$
4. If  $f(x) = 3x^2 + 2x + 5$ , then what is  $f'(x)$ ? CO3K2  
 a)  $6x + 2$     b)  $6x^2 + 2x$     c)  $3x + 2$     d)  $6x + 7$
5. Cramer's rule is named after: CO2K2  
 a) Isaac Newton.    b) Carl Friedrich Gauss.    c) Gabriel Cramer.    d) Leonhard Euler.
6. What is the rank of the matrix  $[[1, 2, 3], [2, 4, 6], [3, 6, 9]]$ ? CO2K3  
 a) 1    b) 2    c) 3    d) 0

**Part- B**

**3x6=18**

**Answer ALL Questions**

**Each answer should not exceed 400 words or two pages**

7. a. Let set  $A = \{1, 2, 3, 4, 5, 6, 7, \}$ , and set  $B = \{3, 4, 6, 8, 10\}$ . CO3K4  
 Find: (i)  $A \cup B$     (ii)  $A \cap B$     (iii)  $(A \cap B)'$   
 or
7. b. Briefly explain about properties of Union Sets CO3K5
8. a. Explain the Properties of Determinants? CO2K3  
 or
8. b. Find  $2A + 4B$  if CO2K3  

$$A = \begin{pmatrix} 3 & 6 \\ 1 & 4 \end{pmatrix} \text{ \& } B = \begin{pmatrix} 2 & 4 \\ 1 & 0 \end{pmatrix}$$
9. a. Find the minor Elements of matrix CO5K2  

$$\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 2 & 1 \end{vmatrix} \quad 3 \times 3$$
  
 or
9. b. solve using product rule CO5K2  
 i)  $(2x^3 + 5)(4x+2)$     ii)  $(4x-1)(5x+3)$

**Part-C**

**3 x 12=36**

**Answer All the questions**

**Each answer should not exceed 800 words or fourpages**

10. a. Explain different types of Set? CO3K3  
 or
10. b. Solve the following set of Simultaneous equations using matrix method CO4K4  

$$\begin{aligned} 2x + 2y &= 8 \\ 4x + 6y &= 12 \end{aligned}$$
11. a. Solve the following equations by using crammers method? CO1K2  

$$\begin{aligned} x + y &= 5 \\ 2x - 3y &= 4 \end{aligned}$$
  
 or
11. b. Explain the types of matrices with suitable examples. CO2K1
12. a. If  $A = \{1,2,3,4\}$   $B = \{2,4,5,6\}$  and  $C = \{1,3,5\}$  CO1K3  
 verify that  $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$   
 or
12. b. Given  $Y = X^5 + 2x$ , find fourth order derivative? CO1K2

