

Name:	Roll Number:

**Quiz 02 (Set A)**  
SIAS, Krea University (AY 2025-26)  
Mathematical Methods for Economics (Course Code: ECON211)  
08 August 2025

**Maximum Points:** 10

**Duration:** 30 minutes

**Instructions and Advice:**

- This is a closed book quiz.
- This quiz accounts for 10% of your grades.
- You need to answer 8 questions in all.
- All questions are compulsory. Points for each question are mentioned in parentheses.
- Please select only one choice for the multiple choice questions.
- At no point during the exam, you are allowed to ask clarificatory questions. Make reasonable assumptions if you have doubts and proceed to answer the question.
- You are not permitted to use any electronic device including calculators.
- There is plenty of time. Use it wisely, do not rush.
- All the best!

## Multiple Choice Questions

1. (1 point) Identify the element  $a_{34}$  in the following matrix A

$$A = \begin{bmatrix} 0 & 1 & 3 & 6 \\ 1 & 2 & 3 & 9 \\ 7 & 5 & 2 & 0 \\ 9 & 4 & 1 & 5 \end{bmatrix}$$

- A. 1
- B. 0
- C. 3
- D. 2

Answer: \_\_\_\_\_

2. (1 point) Find the roots of the following quadratic equation:  $-2x^2 + 40x - 600 = 0$ .

- A.  $(10, -40)$
- B.  $(10 \pm \sqrt{5})$
- C. No real roots exist
- D.  $(-10, 30)$

Answer: \_\_\_\_\_

3. (1 point) Consider the following statements:

**Statement (i):** The set of equations:  $2x + 3y = 5$  and  $4x + 6y = 7$  does not have any solution.

**Statement (ii):** The set of equations:  $4x - y = 3$  and  $-28x + 7y = 21$  does not have any solution.

- A. Both (i) and (ii) are correct.
- B. Statement (i) is correct but statement (ii) is incorrect.
- C. Statement (ii) is correct but statement (i) is incorrect.
- D. Both statements are incorrect.

Answer: \_\_\_\_\_

### Short Answer Questions-I

4. (1 point) Let  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$  and  $B = \begin{bmatrix} 0 & -1 \\ 6 & 7 \end{bmatrix}$ . Compute  $AB$ .

5. (1 point) There are two matrices  $A$  and  $B$  such that:

$$A = \begin{bmatrix} x+5 & 0 & 3 \\ 4 & 0.75y & 8 \end{bmatrix}, \quad B = \begin{bmatrix} 6 & 5 & 0.5 \\ 10 & 2 & -10 \end{bmatrix}, \quad 2A + B = \begin{bmatrix} 24 & 5 & 6.5 \\ 18 & 5 & 6 \end{bmatrix}$$

Compute  $x$  and  $y$ .

6. (1 point) Solve for  $x$  and  $y$ :

$$4x - 3y = 1$$

$$2x + 9y = 4$$

## Short Answer Questions-II

7. (2 points) Given the following supply and demand equations:

$$\text{Supply: } P = 2Q_S^2 + 10Q_S + 10$$

$$\text{Demand: } P = -Q_D^2 - 5Q_D + 52$$

Calculate the equilibrium price and quantity.

8. (2 points) Use Cramer's rule **OR** matrix inverse method to solve the following set of equations:

$$5x_1 + 9x_2 = 14$$

$$7x_1 - 3x_2 = 4$$

