Name:	Roll Number:

Quiz 01 (Set C)

SIAS, Krea University (AY 2025-26)
Mathematical Methods for Economics (Course Code: **ECON211**)
25 July 2025

Maximum Points: 10 **Duration**: 30 minutes

Dear students,
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.
- Incomplete answers will receive penalty.
- 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) There are two sets A and B.

$$A = \{x : x \text{ is a prime number}\}$$
$$B = \{x : x \text{ is an even number}\}$$

The universal set is $\mathbb{U} = \{x : 0 \leq x \leq 20\}$.

What is $A \cap B^{\mathsf{c}}$?

A. $\{1, 7, 11, 19\}$

B. $\{1, 3, 5, 7, 9, 11, 13, 17, 19\}$

C. $\{3, 5, 7, 11, 13, 17, 19\}$

D. $\emptyset$

Answer: _____

2. (1 point) If $x^{-2}y^3 = 5$, compute $\frac{1}{40}(x^2y^{-3} + 2x^{-10}y^{15})$.

A. 156.255

B. 15.6255

C. 1562.55

D. 312.51

Answer: _____

3. (1 point) Consider the following statements:

Statement (i): If we take the power of a product, we can distribute the exponent over the different factors.

$$(xy)^a = x^a \times y^a$$

Statement (ii): We can also distribute the exponents when we take power of a sum.

$$(x + y)^a = x^a + y^a$$

A. Both (i) and (ii) are correct.

B. Statement (i) is correct but statement (ii) is wrong.

C. Statement (i) is wrong but statement (ii) is correct.

D. Both (i) and (ii) are wrong.

Answer: _____

Short Answer Questions-I

4. (1 point) Simplify the following expression: $2x^2 - 5yz + 10xz - xy$.

5. (1 point) Solve for x: $|3 - 6x| \leq 24$.

6. (1 point) The shortest side of a triangle is given by x cm. The longest side and the third side are given by $2x$ cm and $2x+5$ cm respectively. What is the minimum value of x to have the perimeter greater than or equal to 50 cm?

Short Answer Questions-II

7. (2 points) In a survey of 30 students, it was found that 15 had taken Mathematics, 12 had taken Physics and 11 had taken Chemistry, 5 had taken Mathematics and Chemistry, 9 had taken Mathematics and Physics, 4 had taken Physics and Chemistry and 3 had taken all the three subjects. Find the number of students that had none of the subjects.

8. (2 points) Solve for x.

$$\frac{(x-4)+3(x+1)}{x+3} \leq 0$$

Rough Work