

<p><b>Modelling and Computation of Electric and Magnetic Fields A.A.</b> Electrical Energy Engineering</p>
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Date (y-m-d format): \_\_\_\_\_

Name and Surname: \_\_\_\_\_

Student ID number: \_\_\_\_\_

For report: other group members: \_\_\_\_\_

## Instructions

Write your personal details (name, surname, etc.) on the sheets to be used for the exam (only once per sheet). Make sure to return all sheets by placing them inside the provided answer sheet

## Questions

### Question 1: Basics of EM

- (a) Discuss Lorentz force, providing examples
- (b) Provide a definition of current density and volume charge density

### Question 2: Finite Difference Method (FDM) - Application to a 2D Poisson problem

Topics to be discussed:

- (a) Mathematical formulation (use Dirichlet BCs on one side of the domain, and Neumann BCs on the other one)
- (b) Discretization  $\rightarrow$  linear system assembly