

Fourth Semester Internal Examination, February 2026

Major Course in PHYSICS

ELECTRODYNAMICS I

PHY4CJ 203

Time: 1 Hr

Max Marks: 35

Name:	Marks Scored	Section A		Total Marks
Class:		Section B		
Roll No.		Section C		

Section A

(Each question carries 3 marks, Max marks for section – 7 marks)

1. Write any three properties of electric field lines.
2. Find the electric field due to a charged sheet.
3. Find the capacitance of two concentric spherical metal shells, with radii a and b .

Section B

(Each question carries 6 marks, Max marks for section – 18 marks)

4. What is electrostatic shielding? And what are the basic electrostatic properties of an ideal conductor.
5. Obtain the boundary condition for electric field E .
6. Derive the differential and integral form of Gauss's law.
7. Derive an expression for energy of a point charge distribution.

Section C

(Answer any one question, Each question carries 10 marks)

8. State Gauss's law. Apply this law to find the electric field due to uniformly charged cylinder
 - (1) Outside the cylinder
 - (2) On the surface of the cylinder
 - (3) Inside the cylinder
9. Define potential and find the electric potential due to a spherical shell outside the shell on the surface of the shell and inside the shell. Also obtain the potential due to infinitely long wire.