
Last name, First name

UTA ID No,

E E 6372-001

High Voltage Engineering

Fall 2009

Final Examination

December 8, 2009

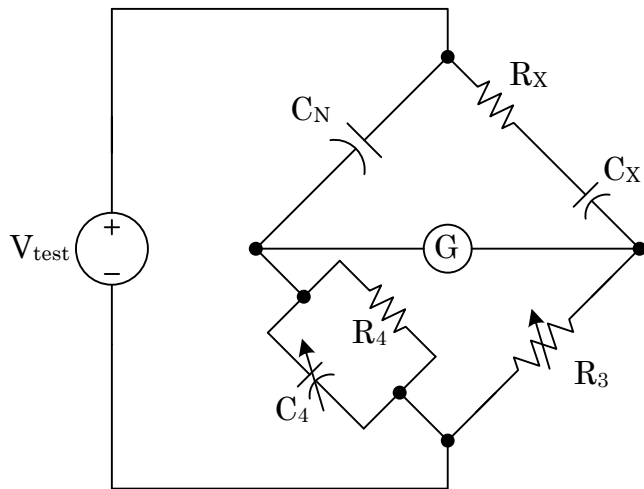
Instructions:

1. *This is a take-home exam.*
2. Turn in the exam by 5:00 pm on the due date.

Problem 1

Given: A Schering bridge is set up to test some insulator material. At balance, $R_3 = 5000 \Omega$, $R_4 = 2000/\pi \Omega$, $C_N = 400 \text{ pF}$ and $C_4 = 900 \text{ pF}$ with the frequency at 60 Hz.

Required: Determine R_X and C_X ; then find the loss tangent angle, δ .

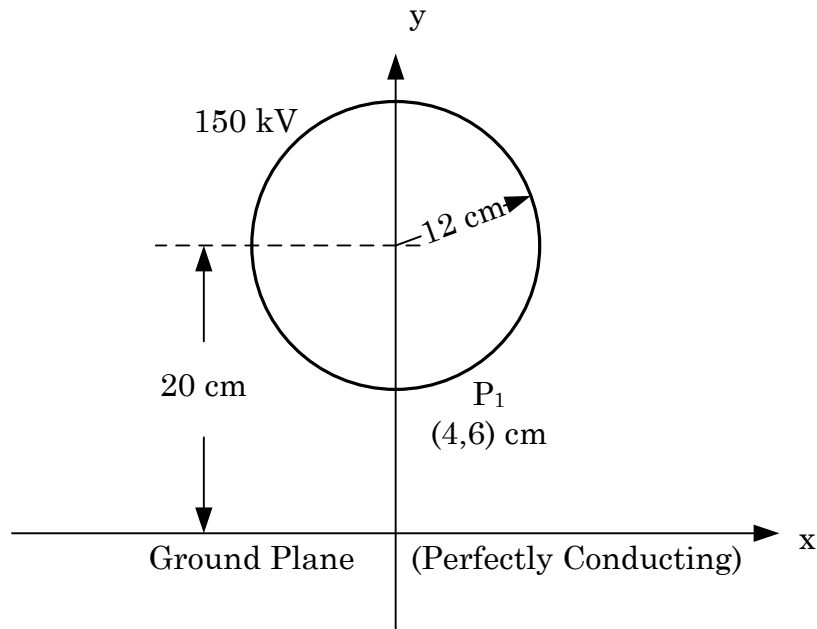


Problem 2

Given: The infinitely long conducting cylinder charged to 150 kV as shown above is suspended above a perfectly conducting ground plane. (The figure is not drawn to scale.)

Required: Calculate the electric potential at point P_1 .

Hint: Use the method of images.



Problem 3

Given: A series of high voltage tests is made on an insulator material. An “o” indicates that the material withstood the test without flashover, whereas an “x” means that the material flashed over.

Required: Using the “up-down” method, determine the 50% flashover voltage and the 10% flashover voltage.

