Phys102 Assignment Cover Sheet

First Name:_____   Last Name:_____   Mark: _____

Student ID:_____   Date: _____

Phys102 Written Assignment #4

Due Friday Oct 8, 10:30am.

Textbook (Giancoli, SFU edition), page 650, question #95.

95. A parallel-plate capacitor with plate area $A = 2.0 \text{ m}^2$ and plate separation $d = 3.0$ mm is connected to a 45-V battery (Fig. 24–40a). (*a*) Determine the charge on the capacitor, the electric field, the capacitance, and the energy stored in the capacitor. (*b*) With the capacitor still connected to the battery, a slab of plastic with dielectric strength $K = 3.2$ is placed between the plates of the capacitor, so that the gap is completely filled with the dielectric. What are the new values of charge, electric field, capacitance, and the energy U stored in the capacitor?