Name: _____

PHY 232 Summer 2016 Class Work

Class 14. Parallel plate capacitor

Given $\varepsilon_0 = 8.8542 \times 10^{-12}\ C^2 m^{-2} N^{-1}$ and $e = 1.6022 \times 10^{-19}\ C$.

A capacitor is formed by putting two square plates each of $4 m^2$ in area parallel to each other with a separation of 1mm. The two plates are kept at a potential difference of 12V.

(a) Calculate the capacitance of this parallel plate capacitor.

(b) What is the charge in one of the plate?

(c) What is the electric field inside the gap between the plates?

(d) What is the energy stored in the capacitor?

(e) What is the energy density?