

**Physics 1214, Homework #7: solutions**

Answers to multiple choice questions: M1: D; M2: D.

$$\text{P1: } I = \varepsilon_0 \frac{\Delta E}{\Delta t} A \quad E = \frac{V}{d} \quad C = \varepsilon_0 \frac{A}{d}$$

$$\text{Combining, we get } I = C \frac{\Delta V}{\Delta t} = 3 \times 10^{-9} \text{ A and } B = \frac{\mu_0}{2\pi r} I = 6 \times 10^{-15} \text{ T}$$

$$\text{P2: } \Delta U = \bar{P} \Delta t = 100 \text{ J} \quad E_{\text{rms}} = \sqrt{\frac{\bar{P}}{Ac\varepsilon_0}} = 6.9 \times 10^9 \text{ V/m}$$