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TCET2220
Chapter 6 problems 6.1-6.21

Professor Viviana
HW Chapter 6 completed 9/16/2013

1) $E = V/d \Rightarrow 200V/\ 5\times10^{-3}m = 40\times10^{3}\ V/m = 40\ kV/m$

2) $E = V/d \Rightarrow 60V/\ 1\times10^{-2}m = 60\times10^{2}\ V/m = 6\ kV/m$

3) $V = E\times d \Rightarrow (2\times10^{3}\ V/m) \times (4\times10^{-2}\ m) = 80\ V$

4) $V = E\times d \Rightarrow (200\ V/mm) \times (8\ mm) = 1600\ V$

5) $H = I/(2\pi d) \Rightarrow 5A\ /\ (2\pi\times3m) = 5/6\pi\ A/m$

6) $H = I/(2\pi d) \Rightarrow (40\times10^{-3}\ A)\ /\ (2\pi\times1.5\ m) = 40/3\pi\ mA/m$

7) (6.3) $D = \varepsilon\times\varepsilon_0\times E \Rightarrow 2000\ V/m \times 2.25\ F/m = 4500\ C/m^2 \times 8.842 \times 10^{-12}\ F/m$

8) (6.4) $D = \varepsilon_0\times E \Rightarrow 8.842 \times 10^{-12}\ F/m \times (200V\ /\ 10^{-3}m) = 1768.4 \times 10^{-9}\ C/m^2$

9) (6.5) $B = \mu \times H \Rightarrow 1.257 \times 10^{-6}\ H/m \times (5/6\pi\ A/m) = .333 \times 10^{-6}\ Wb/m^2$

10) (6.6) $B = \mu \times H \Rightarrow 1.257 \times 10^{-6}\ H/m \times (40/3\pi\ A/m) = 5.33 \times 10^{-9}\ Wb/m^2$

11) $\Phi = D \times A \Rightarrow A = (8m \times .75m) = 6\ m^2 \Rightarrow 4\ \mu C/m^2 \times 6\ m^2 = 24\ \mu C$