

Due: Thursday, February 3, 2005

1. 3.14
2. 3.16
3. 3.18
4. 3.21
5. We are given the following data for the giant squid axon.

<u>Constant</u>	<u>Value</u>
C ($\mu\text{f}/\text{cm}^2$)	1
$V_{r,p}$ (mv)	60
E_K (mv)	-72
E_{Na} (mv)	55
E_l (mv)	-49.4
\bar{g}_{Na} (m.mho/ cm^2)	120
\bar{g}_K (m.mho/ cm^2)	36
g_l (m.mho/ cm^2)	0.3

Using the circuit on page 49 of your class notes, compute the size of the current pulse (magnitude and pulse width) necessary to lower the membrane potential to $V_o = 40 \text{ mV}$ (or $V_m = -40 \text{ mV}$), and then return to resting potential. Neglect any change in the potassium and sodium conductances from resting potential in your calculations (include g_K and g_{Na} at resting potential when computing the current pulse), but include their conductance calculated at resting potential. *Show all work.*

