

Due: Thursday, February 14, 2008

1. Simulate the solution to 11.20 using Simulink.
2. This homework is a continuation of problem 5, HW2. Simulate an action potential for the squid giant axon with the Hodgkin-Huxley model using SIMULINK. Use a stimulus current pulse sufficient to raise the membrane potential above threshold (use 1.25 times the magnitude of the current pulse computed in homework #2, problem 2, i.e., $17\mu A$). Remember initial conditions are required for integrators, and you probably want to look at an integrator with a fixed interval.

Your report should contain a listing of your SIMULINK model, and three SIMULINK plots of:

1. membrane potential, sodium conductance, and potassium conductance versus time,
2. membrane potential, n , m , and h versus time,
3. membrane potential, sodium current, potassium current and leakage current versus time.