Homework 2

1. Implement Hodgkin-Huxley model in Matlab. Use a 500us depolarization pulse to evoke an action potential. Record the output as a plot of Vm vs. time. Submit the plot and the .m file.

2. Investigate the effect of different parameters changes on the AP shape and threshold. For each provide a supporting figure and a physiological explanation behind the response.
    a. Temperature
    b. g_{Na}
    c. g_{L}
    d. g_{K}
    e. $[K_{out}]$
    f. $[Na_{out}]$

3. For each of the following changes to the AP propose one possible mechanism. Provide the Matlab simulation with the supporting figure and a physiological explanation.
    a. Repetitive firing
    b. Increased threshold
    c. Increased refractory time
    d. Increased AP amplitude