1 General Formula

2 Neurons

2.1 Biology

Neuron contains **Soma, Axon, Dendrites**. Signals travel away from Soma via Axon.

2.1.1 Membrane

Membranes contain Sodium and Potassium Channels and a Sodium-Potassium Pump. Each Channel:
1. Na: Outside of cell
2. K: Inside of cell
3. Na-K Pump: 3 Sodium out for 2 Potassium in

Voltage Difference (Membrane Potential): Difference in voltage on either side of membrane. Resting potential is –70mV. This resting potential is enforced by the Na-K Pump.

Action Potential: Electrical impulse travelling along axon to the synapse.

2.2 Hodgkin-Huxley Model

Model of Neuron based on Ion Channel components.

Fraction of Potassium channels open is $n(t)^4$ where $\frac{dn}{dt} = \frac{1}{\tau_{n(V)}}\left(n_{\infty(V)} - n\right)$