The Nervous System II: Anatomy Review

1. The somatic nervous system stimulates __________ muscle.
   The autonomic nervous system stimulates __________ muscle, __________ muscle, and __________.

2. The autonomic nervous system (ANS) consists of two divisions, each innervating the effector organs. The sympathetic nervous system (SNS) generally speeds up everything except digestion. The parasympathetic nervous system (PNS) generally slows down everything but digestion.
   Signals from the SNS cause the heart rate to ________, while signals from the PNS cause the heart rate to __________.
   Signals from the SNS cause smooth muscles of the intestine to ________ contractions, while signals from the PNS cause these muscles to ________ contractions.
   Signals from the SNS also cause the adrenal gland to ________ epinephrine and norepinephrine.

3. Neurons can excite or inhibit another neuron.
   Exciting another neuron will increase the chances of a/an ________________ in the second neuron.
   Inhibiting another neuron will make the chances of a/an ________________ less likely.

4. Axons from one neuron can synapse with the dendrites or soma of another axon.
   These synapses are called ______________________ (on dendrites) and _________________________ (on soma). They carry input signals to the other neuron.
   Axons from one neuron can synapse with the axon terminal of another neuron. These synapses are called ________________, and they regulate the amount of __________________ released by the other neuron.

5. The electrical synapse:
   Electrical current flows from one neuron to another through ________________.
   These synapses are always (excitatory or inhibitory).
   Advantages of the electrical synapses:
   1. _______ signal conduction
2. _____________ activity for a group of neurons.

6. The chemical synapse:

Chemical synapses are not as fast as electrical but are the most common type of synapse. A chemical, called a _________________, is released from the sending neuron and travels across the _________________ (a gap between the neurons) to the receiving neuron.

Advantages of the chemical synapse:

1. The signal can be either ____________ or ____________.
2. The signal can be ______________ as it passes from one neuron to the next.

7. The neuron conducting the impulse toward the synapse is called the ________________ neuron. The axon terminal contains ___________ ___________ filled with _________________.

An action potential in the axon terminal of the ________________ neuron causes the chemical transmitter _________________ to be released. It diffuses across the synaptic cleft and binds to receptors on the ________________ membrane.

These receptors open _________________. The movement of the charged particles causes an electrical signal called a _________________.