Chapter 11 Worksheet

Autonomic Nervous System

What regulates the ANS? (p 271)

What are the two major branches?

Draw the flowchart of the nervous system:

What do autonomic sensory neurons detect?

What are some structures that autonomic motor neurons effect?

What are some autonomic responses?

What does “dual innervation” mean?

What neurotransmitters are present in the sympathetic nervous system?

What neurotransmitters are present in the parasympathetic nervous system?

What is mostly secreted from the sympathetic postganglionic neurons?
Please label the diagrams including the neurons and neurotransmitters. (see p. 273)

<table>
<thead>
<tr>
<th>Neuron Type</th>
<th>Neurotransmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Somatic motor neuron</td>
<td>Epinephrine</td>
</tr>
<tr>
<td>Acetylcholine</td>
<td>Norepinephrine</td>
</tr>
<tr>
<td>Preganglionic sympathetic neuron</td>
<td>Glands</td>
</tr>
<tr>
<td>Autonomic ganglion</td>
<td>Smooth muscle</td>
</tr>
<tr>
<td>Postganglionic sympathetic neuron</td>
<td>Cardiac muscle</td>
</tr>
<tr>
<td>Adrenal medulla</td>
<td>Blood vessel</td>
</tr>
</tbody>
</table>

(a) Somatic nervous system

(b) Autonomic nervous system
Please read over the structures of the sympathetic division of the autonomic nervous system and say them aloud. **Which neurons synapse in a sympathetic trunk ganglion?**
Please read over the structures of the sympathetic division of the autonomic nervous system and say them aloud. Which division, sympathetic or parasympathetic, has longer preganglionic axons?
What are the activities of the sympathetic nervous system? (p. 277: 1-8)

Which division of the autonomic nervous system is “fight-or-flight”?

Which division of the autonomic nervous system is “rest-and-digest”?

**Frontal lobe** (color red) – motor strip location, impulsivity, short term memory, emotion, voluntary movement, social functioning, creativity, expressive language.

**Parietal lobe** (color blue) - sensory strip location, perception, touch/ pain, ability to draw, reading and writing, calculations.

**Temporal lobe** (color yellow) – hearing, long term memory, verbal and written recognition memory, receptive memory, music, initiation of verbal.

**Occipital lobe** (color green) – perception, vision.

**Cerebellum** (not shown) – coordination, balance, ability to judge distance, muscle tone, including muscles required for speech.

**Brain stem** (not shown) – connects the brain with the spinal cord, consists of midbrain, pons, medulla oblongata.

**Diencephalon** (not shown) – consists of thalamus, hypothalamus, pineal gland.