Chapter 21 Control and Coordination

Section 1 The Nervous System

A. Your nervous system helps your body make adjustments to changes in your _____.
1. Stimulus—any change inside or outside your body that brings about a(n) _____
2. _____—the regulation of steady conditions inside an organism
B. Neurons are made up of a cell body and _____ called dendrites and axons.
1. _____ receive messages and send them to the cell body.
2. _____ carry messages away from the cell body.
3. Messages carried by nerve cells are called _____.
4. You have three kinds of nerve cells:
a. _____ nerve cells receive information and send impulses to the brain or spinal cord.
b. _____ relay the impulses from sensory nerve cells to motor nerve cells.
c. Motor nerve cells conduct impulses from the brain to _____ and _____
throughout your body.
5. Nerve cells do not touch each other, yet still pass _____ to each other.
a. A **synapse** is a(n) _____ between nerve cells.
b. When an impulse reaches the end of an axon, the axon releases a(n) _____.
c. This chemical flows across the synapse and relays the impulse to the _____ of
the next neuron.
C. The **central nervous system** is made up of the brain and _____.
1. The _____ coordinates all of your body activities.
2. Cerebrum—the part of the brain that interprets impulses from the senses, stores
_____, and controls movements
a. _____ takes place here.
b. _____ part of the brain
c. Outer layer is called the _____, which allows more complex thoughts to be processed.
3. _____—the part of the brain located behind and under the cerebrum
a. Interprets _____ from the eyes, ears, muscles, and tendons
b. Coordinates _____ muscle movements, maintains muscle tone, and helps
maintain _____

4. Brain stem—the part of the brain that extends from the cerebrum and connects it to the
_____
a. Made up of the midbrain, the pons, and the _____
b. The midbrain and pons are pathways connecting different parts of the _____ with
each other.
c. The medulla controls _____ actions such as heartbeat, breathing, and blood
pressure.
5. The _____ is made up of bundles of nerve cells that carry impulses to and from
the _____.
D. The **peripheral nervous system** connects your brain and spinal cord.
to _____.
1. The somatic system controls _____ actions.
2. The autonomic system controls _____ actions.
E. Any _____ to the brain or spinal cord can be serious.
1. Injury to the spine can result in loss of muscle movement, called
_____.
2. It is important to wear _____ when playing sports or riding in a car or on a
bicycle.
F. Reflex—an involuntary, automatic response to a stimulus controlled by the
_____
G. Drugs like alcohol and caffeine affect your _____.
1. Alcohol _____ the activities of the central nervous system.
2. Caffeine _____ the activity of the central nervous system.

Section 2 The Senses

A. Light rays, sound waves, heat, chemicals, or pressure that come into your personal territory
_____ your sense organs.
B. Your body has _____ senses:
1. Vision
a. Light enters your eye, and the cornea and lens focus it onto the _____.
b. The light stimulates the _____ and _____, two types of cells found in your retina.
c. The rods and cones send impulses to the _____, which carries them to the
visual area of the _____.
d. Your cortex _____ the image and you "see."
e. Nearsightedness occurs when light is focused _____ the retina.
f. Farsightedness occurs when light is focused _____ the retina.
g. _____ lens, thicker at edge than in middle, corrects nearsightedness.
h. _____ lens, thicker in middle than at edge, corrects farsightedness.
2. Hearing—when an object vibrates, it produces _____ necessary for hearing sound.
a. Your outer ear catches sound waves and funnels them down the ear canal to the _____.
b. In the middle ear, the sound waves cause the _____ to vibrate, and these vibrations
move through tiny bones—the hammer, anvil, and _____.
c. In the inner ear, the vibrations cause the fluids in the _____ to vibrate, stimulating
nerve endings.
d. The stimulated nerve endings send impulses to the _____, where the stimulus is
interpreted.
e. The cristae ampullaris and maculae in the middle ear control the body's _____.
3. Smell
a. Food and other objects give off _____ into the air.
b. These molecules stimulate nerve cells, called _____**,** in your nasal passages.
c. The olfactory cells send impulses to the _____, where the stimulus is interpreted.
4. Taste
a. _____ on your tongue are the major sensory receptors for taste.
b. When the solution of _____ and food washes over the taste buds, impulses are
sent to the _____, where the stimulus is interpreted.
5. Touch
a. Sensory receptors are found in _____ and _____.

b. Sensory receptors pick up changes in touch, pressure, pain, and temperature and send
impulses to the _____ or _____.