Review Questions; Ch 9 Answer Key

9.1

a. neurons

b. brain and spinal cord

c. sends electrochemical signals

d. CNS and PNS

e. in dendrites out axon

f. cerebrospinal fluid, nourishment and protection of the CNS

g. the bodies conscious and unconscious control

9.2

a. sensory, motor and integrative

b. somatic (conscious) and autonomic (ANS; unconscious)

c. sensory; unipolar and bipolar

9.3

a. astrocyte – fills in brain damage; microglial – phagocytizes bacteria and dead cells; ependymal cells – lines ventricles and secretes CSF; oligodendrocyte – makes myelin

b. schwann cells; contains neurolemma which helps cells regenerate

9.4

a. motor and integrative = multipolar; sensory = unipolar and bipolar

9.5

a. sodium ions rush in, potassium ions leak out of membrane, impulse spreads along neuron; depolarized (charges mix)

b. sodium ions outside and potassium ions inside membrane (charges separate); more positive outside and negative inside the membrane; polarized

c. repolarization

9.6

a. brain – gray outside, white inside; spinal cord – gray inside, white outside

b. gray is slow – outside of brain is for thinking and processing so doesn’t need to be fast. White matter is fast, so needed for reflexes like the outside of spinal cord

c. gray spreads signal over entire neuron; white impulse jumps over myelin onto nodes of ranvier (salutatory conduction) making it fast

9.7

a. the amount of stimuli needed to cause an action potential (depolarize a neuron)

b. impulse causes release of a neurotransmitter into the cleft

9.8

a. convergence – many signals come to one location/neuron; divergence – one location/neuron sends signal to many locations (amplifying the signal)

9.10

a.1. sensory receptor (skin) 2. Sensory (afferent) neuron 3. Interneuron (spinal cord) 4. Motor (efferent) neuron 5. Effector (muscles or glands)

b. muscles or glands (respond to reflex)

9.11

Outside of white matter; core of gray matte r(butterfly shape) with a central canal filled with CSF in the center. Cervical plexus controls upper limbs; lumbosacral plexus controls lower limbs

Other things to study: 9.13 brain and 9/14-15 Divisions of the ANS