Review questions for Exam Four

What’s the difference between the somatic nervous system and the autonomic nervous sytem?

Identify the cell types in the nervous system and discuss their functions: both nerve cells and the different types of glial cells.

What’s the difference between a tract and a nerve?

Which cells produce myelin and how?

What’s the difference between white matter and gray matter?

What are the structural classifications of neurons? The functional classifications?

How would you describe a resting membrane potential? How would you calculate one?

Which ions are where across an axon at rest?

Define and understand the following terms: action potential, depolarization, repolarization, hyperpolarization

How do the ions move across the axon membrane in each of the above terms?

Compare a graded potential to an action potential

How is threshold defined?

If all action potentials fire off with the same intensity, how does the brain interpret a strong stimulation versus a weak one?

Discuss absolute and relative refractory periods

Describe how the impulse reaches the axon terminal and crosses the synapse. Discuss also the role of enzymes.

Describe IPSP versus EPSP

Compare spatial to temporal summation

Which neurotransmitters were discussed in the notes? What are their functions?

What are the types of circuits in neuronal pools? How do they differ?

What belongs in the telencephalon? Diencephalon? Mesencephalon? Metencephalon? Myelencephalon?

Where are the ventricles located? How are they interlinked?

Compare the functional areas of the cerebral cortex.

The four motor areas are what? What are their functions?

What are the sensory areas and their functions?

Which brain areas are associated with language?

What categories of white matter are seen in the cerebrum?

What are the basal nuclei and what are their functions?

Compare thalamus location and function to hypothalamus location and function

Which structures are associated with the epithalamus?

What are the three divisions of the brain stem and their functions?

Describe each of the meningeal layers

How and where is CSF produced? What is its function?

What is the blood-brain barrier and what does it do?

Where does the spinal cord start, and where does it end? What specialized features does it demonstrate?

Where is the gray matter in a spinal cord and how is each region identified?

What’s the difference between a ventral horn, a dorsal horn, and a spinal nerve?

Discuss the white matter in the spinal cord. What are the ascending tracts and what type of information to they convey? What are the descending tracts and what type of information to they convey?

Define the terms: funiculus, decussate

What are the affects of upper motor neuron damage versus lower motor neuron damage?

Classify the sensory receptors by stimulus type: what are their names and to what do they respond?

How are the sensory receptors divided based on location?

Which receptors are encapsulated? Which are unencapsulated?

Describe adaptation and how it works; Which senses adapt easily and which don’t

What’s the difference between first, second, and third order neurons?

Describe the locations and function of the endoneurium, perineurium, and epineurium

What are the four types of mixed nerves? What type of information are they carrying based on their names?

List each of the twelve cranial nerves by name. What are the functions? Which are sensory only? Which are motor only? Which have parasympathetic fibers?

What is a plexus? What important nerves come from the cervical plexus? The brachial plexus? The lumbar plexus?

Describe the components of a reflex arc.

Be able to discuss the patellar reflex in terms of the components of the reflex arc.

What’s the difference between a Golgi Tendon Organ and a Muscle Spindle

Compare the flexor reflexes with the crossed extensor reflexes with the cutaneous reflex.



















