

Spinal Cord and PNS

EQ: Compare and contrast the 2 divisions of the peripheral nervous system.

- I. Nerves
 - a. A bundle of neurons found outside the CNS
 - b. 3 Main Types
 - i. Sensory (afferent)
 - ii. Motor (efferent)
 - iii. Mixed (carry both)
- II. Cranial Nerves
 - a. 12 pairs
 - b. They serve the head and neck (for the most part)
 - c. Most are mixed nerves
- III. The Spinal Cord
 - a. The spinal cord functions as a two-way pathway for nerve impulses to and from the brain
 - b. The spinal cord runs from the base of the brain to L1 or L2
 - c. 31 pairs of spinal nerves branch out from the cord to serve all parts of the body
 - d. Cross Section of Spinal Cord
 - i. The Grey Matter Horns
 1. Reaction arch in the spine
 2. Posterior (dorsal) horns
 - a. interneurons(sensory)
 3. Anterior (ventral) horns
 - a. some interneurons but mostly somatic motor neurons
 4. Lateral horns
 - a. contain autonomic nerve fibers
 - ii. The White Matter Columns
 1. Speed way to the brain
 2. Posterior (dorsal) columns
 - a. interneurons(sensory)
 3. Anterior (ventral) columns
 - a. some interneurons but mostly somatic motor neurons
 4. Lateral columns
 - a. contain both
- IV. Spinal Nerves – The PNS
 - a. Each nerve is named according to its nearby vertebra
 - b. Each spinal nerve is formed from two roots
 - i. Dorsal root – sensory roots and ganglia
 - ii. Ventral root – motor roots
 - c. A dorsal root and a ventral root fuse laterally (on the side) to form spinal nerves
 - d. Autonomic and Somatic Motor Systems
 - e. Nerve Plexuses
 - i. Complex network of mixed nerves
 - ii. 4 Plexuses
 1. Cervical
 2. Brachial
 3. Lumbar
 4. Sacral
- V. Autonomic Nervous System

- a. The ANS is a subdivision of the PNS that automatically controls body functions
- b. It is divided into two parts
 - i. Sympathetic – “fight, flight, or fright”
 1. Activated during exercise, excitement, and emergencies
 2. We are excited
 3. Emergency situations
 4. Increased heart rate, blood pressure, dilation of blood vessels, removal of blood from digestive organs (butterfly effect in stomach when nervous)
 - ii. Parasympathetic – “rest and digest”
 1. Concerned with conserving energy
 2. Normal digestion
 3. Removal of feces & urine
 4. Low respiratory and blood pressure
 5. Pupils constricted
 - iii. Homeostasis is a dynamic balance between the autonomic branches