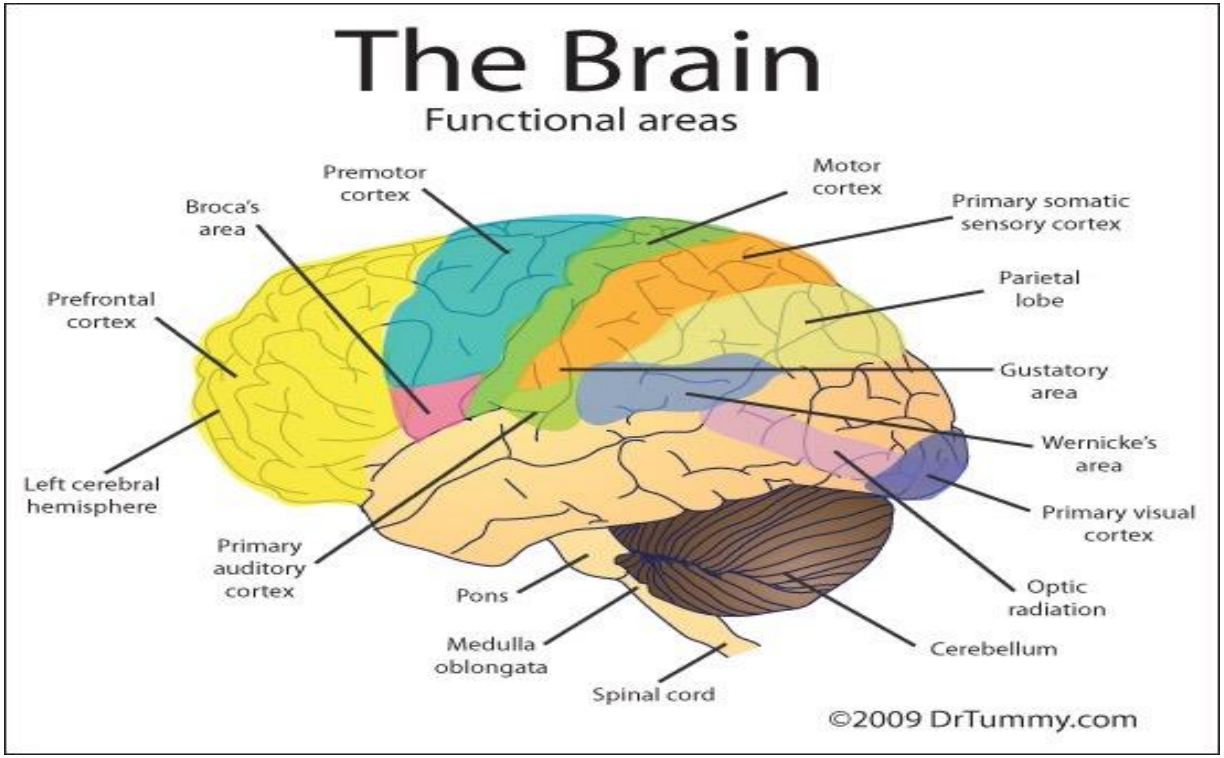
PG 2SEMESTER(CBCS)
PAPER 6(NEUROPSYCHOLOGY)
UNIT-I BRAIN

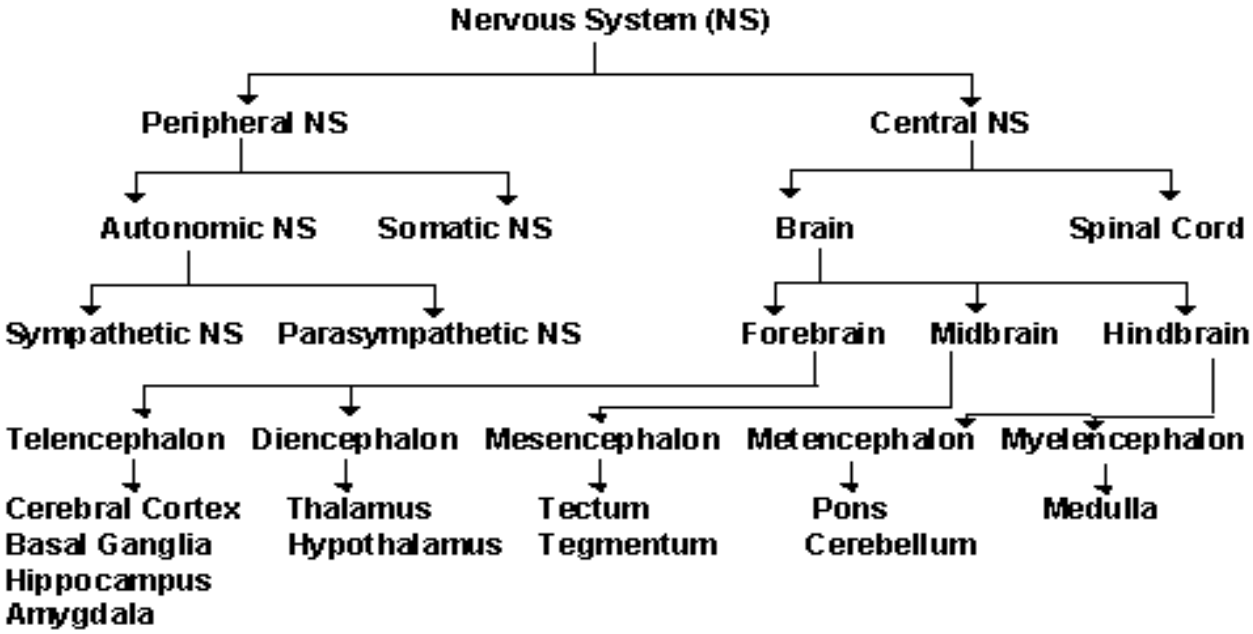


ABOUT HUMAN BRAIN

The human brain is not only one of the most important organs in the human body; it is also the most complex. In central nervous system laying in carnial cavity surrounded by three membranes are: Duramater, Anachnaidmater and paimater. The typical human brain weight almost 3 pounds. The brain is divided into three parts: 1. FOREBRAIN

2. MIDBRAIN

3. HINDBRAIN



FOREBRAIN (Prosencephalon)

The forebrain is divided into two main parts: Telencephalon and Diencephalon. The Telencephalon involves cerebellum, basal ganglia, olfactory tracts. In Diencephalon, the thalamus, optic tracts, retina of eye, the pituitary body, the maminellary bodies, the hypothalamus . A major component of the telencephalon is the cerebral cortex, which is further divided into four lobes. These lobes include the frontal lobes, parietal lobes, occipital lobes, and temporal lobes. The cerebral cortex contains folded bulges called gyri that create indentations in the brain. Functions of the cerebral cortex include processing sensory information, controlling motor functions, and performing higher-order functions such as reasoning and problem-solving.

Frontal Lobes: The prefrontal cortex, premotor area, and motor area of the brain. These lobes function in voluntary muscle movement, memory, thinking, decision-making, and planning.

Parietal Lobes: Responsible for receiving and processing sensory information. These lobes also contain the somatosensory cortex, which is essential for processing touch sensations.

Occipital Lobes: Responsible for receiving and processing visual information from the retina.

Temporal Lobes: Home of the limbic system structures, including the amygdala and hippocampus. These lobes organize sensory input and aid in auditory perception, memory formation, and language and speech production

third ventricle are located.

Diencephalon

The **diencephalon** is the region of the brain that relays sensory information and connects components of the endocrine system with the nervous system. The diencephalon regulates a number of functions including autonomic, endocrine, and motor functions. It also plays a major role in sensory perception. Components of the diencephalon include:

Thalamus: A limbic system structure that connects areas of the cerebral cortex that are involved in sensory perception and movement with other parts of the brain and spinal cord. The thalamus also plays a role in the control of sleep and wake cycles.

Hypothalamus: Acts as the control center for many autonomic functions including respiration, blood pressure, and body temperature regulation. This endocrine structure secretes hormones that act on the pituitary gland to regulate biological processes including metabolism, growth, and the development of reproductive system organs. As a component of the limbic system, the hypothalamus influences various emotional responses through its influence on the pituitary gland, skeletal muscular system, and autonomic nervous system.

Pineal Gland: This small endocrine gland produces the hormone melatonin. Production of this hormone is vital to the regulation of sleep-wake cycles and also influences sexual development. The pineal gland converts nerve signals from the sympathetic component of the peripheral nervous system into hormone signals, thereby linking the nervous and endocrine systems.

MIDBRAIN(Mesencephalon)

The midbrain is the topmost part of the brain stem and also its shortest part. Being 2 cm in length, it connects cerebrum with pons and cerebellum. It passes through the Tentorial Notch. It is very small section sandwiched between forebrain and hindbrain. It has two major parts, namely tectum (roof) and floor. The optic tract from the eye sends axon here, providing the only direct sensory input to the midbrain. There are only two pairs of motor nerve leaving the midbrain. The interior part of midbrain consist of grey matter interconnected with groups of axon. This is called Reticular Formation. The tectum is posterior part of tegmentum behind the cerebral adueduct.

TECTUM:- It is a small portion of the brain specifically the drossal part of the midbrain. It serve as a relay center for the sensory information from the ears to the cerebrum. It controls the reflex movements the head eye and neck muscles.

TEGMENTUM:-It is found in the brainstem. It is the largest complex structure with th ninty nucli present under the rectum. It forms the plate form for the midbrain and connects with the thalamus, cerebral cortex and the spinal cord. It is mainly involve in the movement sleeo, arousak ,attention and various basic reflexes.

HINDBRAIN(Rhombencephalon)

brain stem, which are responsible for some of the most basic autonomic functions of life, such as breathing and movement. The brain stem contains the Pons and Medulla Oblongata. Evolutionarily speaking, the hindbrain contains the oldest parts of the brain, which all vertebrates possess, though they may look different from species to species.

The Cerebellum: -It the second largest part of the brain which is located in the posterior portion of the medulla and cerebrum are separated by tentoriam. It also consist two hemisphere outer and inner .It is also responsible for balancing and coordinating body balancing during walking riding, swimming and fine controls of the voluntary movements.

Medulla Oblongata:- It is small and lower region of the brain that is well protected and enclosed. It comprises of the cardiovascular center and the respiratory center. Ithelping us in maintaining our posture and controlling reflexes. It also involves life sustaining function such as swallowing, vomiting, salivation.

Pons:- The Pons is major structure of brain stem present between the midbrain and medulla .It serves as relay system. It is involves in transferring information between the cerebellum and motor cortex, controls magnitude frequency of respiration, controlling sleep cycle, taste hearing and balance.

THANK YOU.
STAY AT HOME STAY SAFE

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