

ORGANIZATION OF THE NERVOUS SYSTEM

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تنويه: هذا العمل لا يعتبر مصدر رئيسي للمذاكرة وإنما للمرجعة فقط

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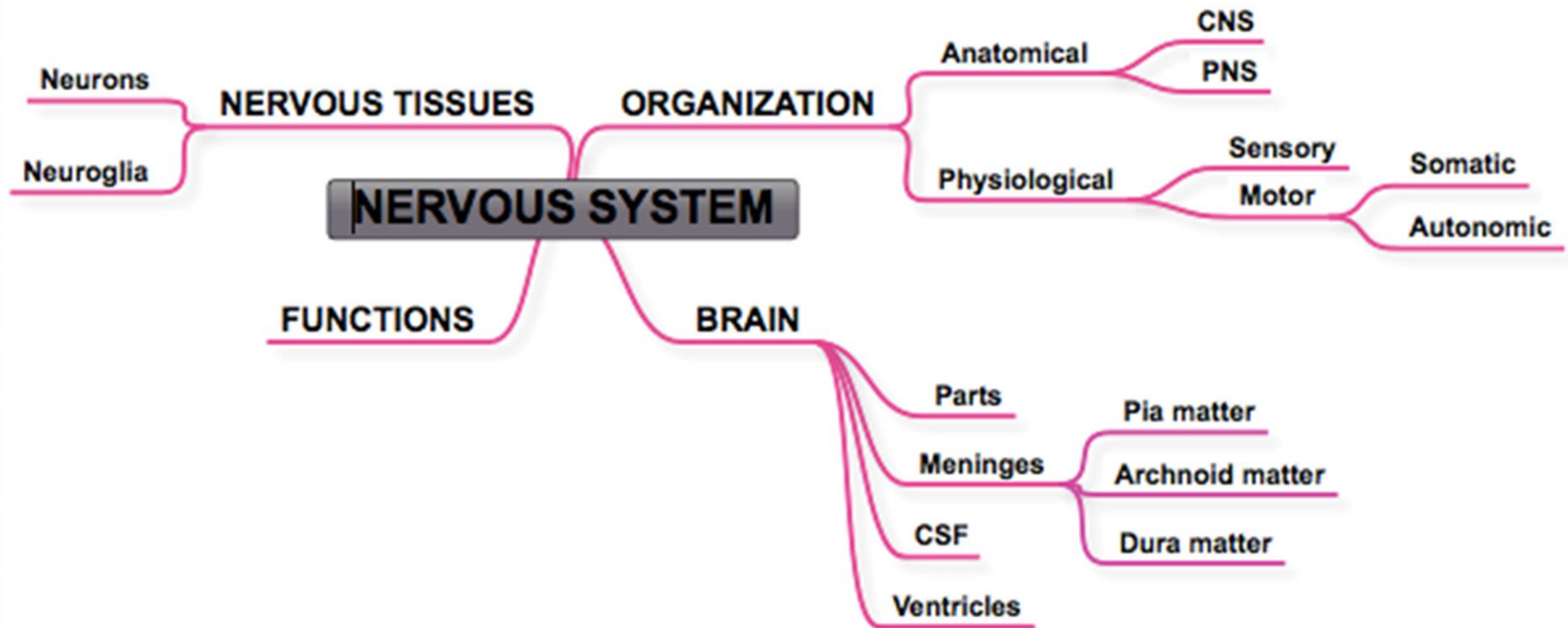


LECTURE OBJECTIVES

At the end of the lecture, the students should be able to:

- List the **parts** of the nervous system.
- List the **function** of the nervous system.
- Describe the **Structural & Functional Organizations**.
- **Define the terms:**
Nervous tissue, grey matter, white matter, nucleus, ganglion, tract, nerve.
- List the **parts** of the brain.
- List the **structures protecting** the central nervous system.

OVERVIEW



*MENINGES: are **three** connective tissue **membranes** invest the **brain** and the **spinal cord**.

NERVOUS SYSTEM CLASSIFICATION

Nervous system is divided :

1- anatomical into ;

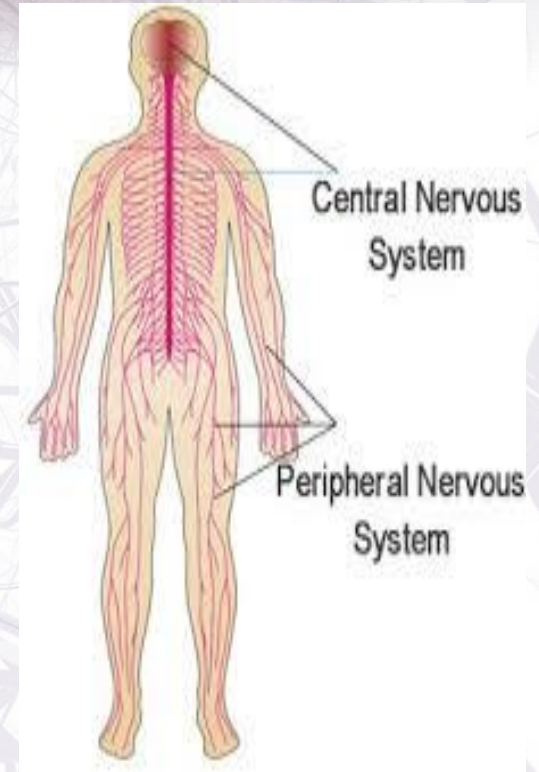
- Central nervous system : brain & spinal cord
- Peripheral nervous system : spinal nerves & ganglia

2- physiological into ;

- Sensory “afferent”
- Motor “efferent”

and motor system is subdivided into :

- Autonomic ; control visceral organs by sympathetic and parasympathetic fibers
- Somatic ; control skin , skeletal muscle and joints



CENTRAL NERVOUS SYSTEM ORGANIZATION

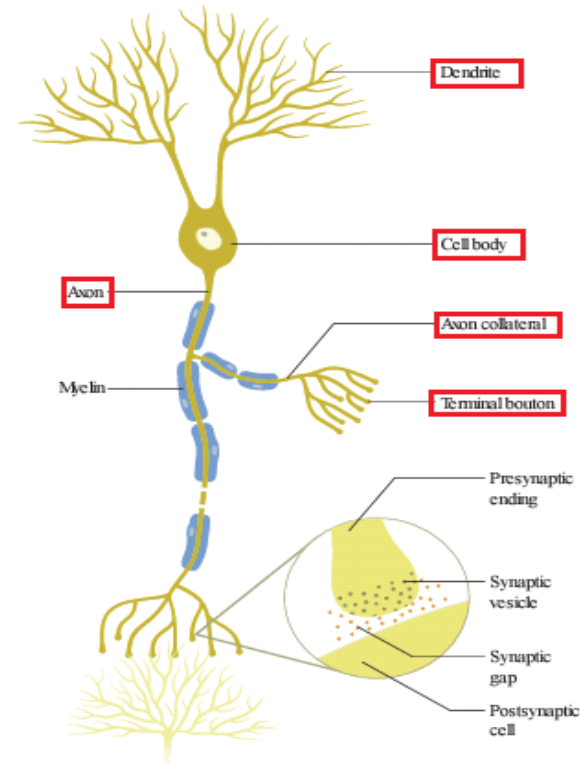
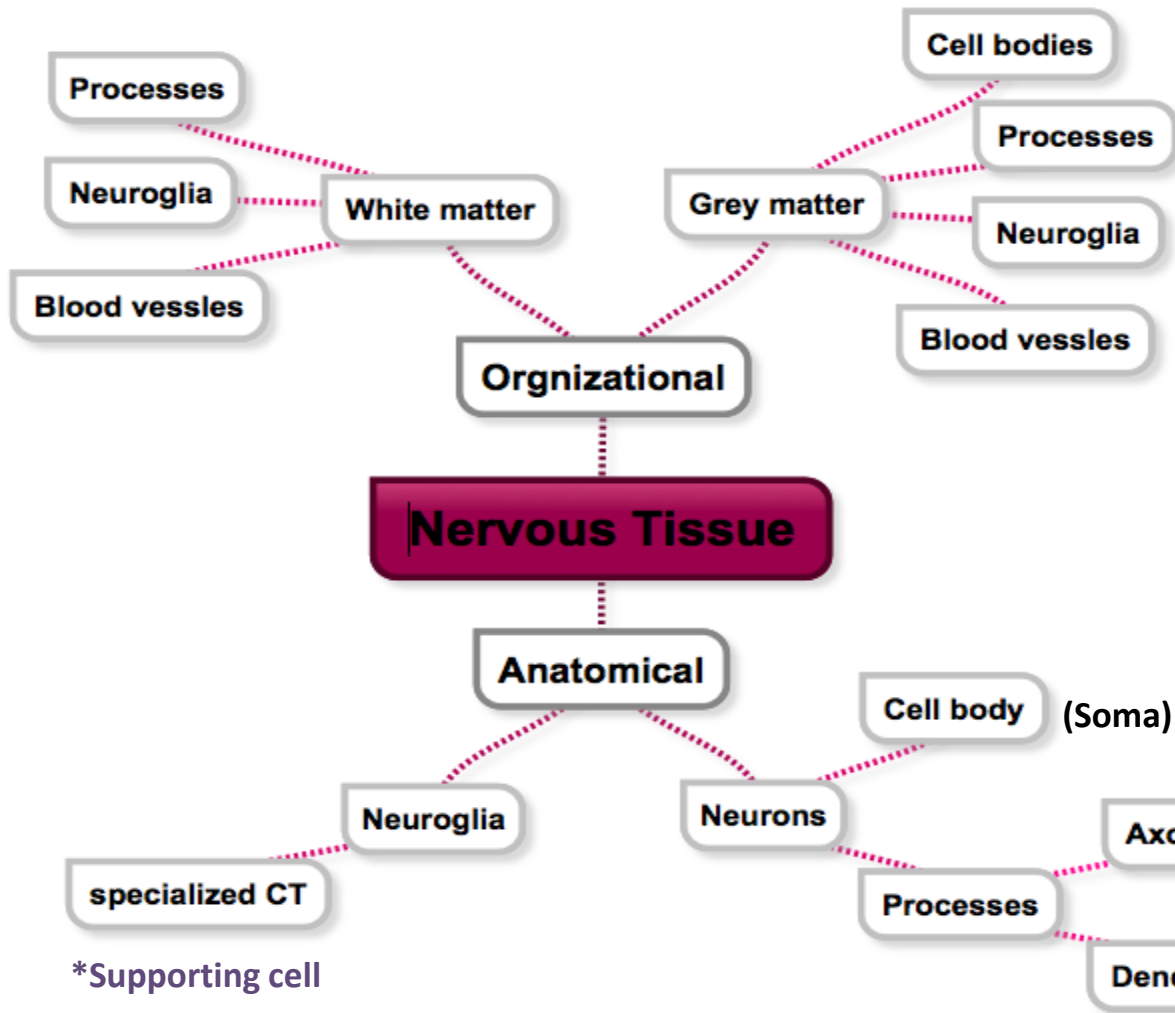
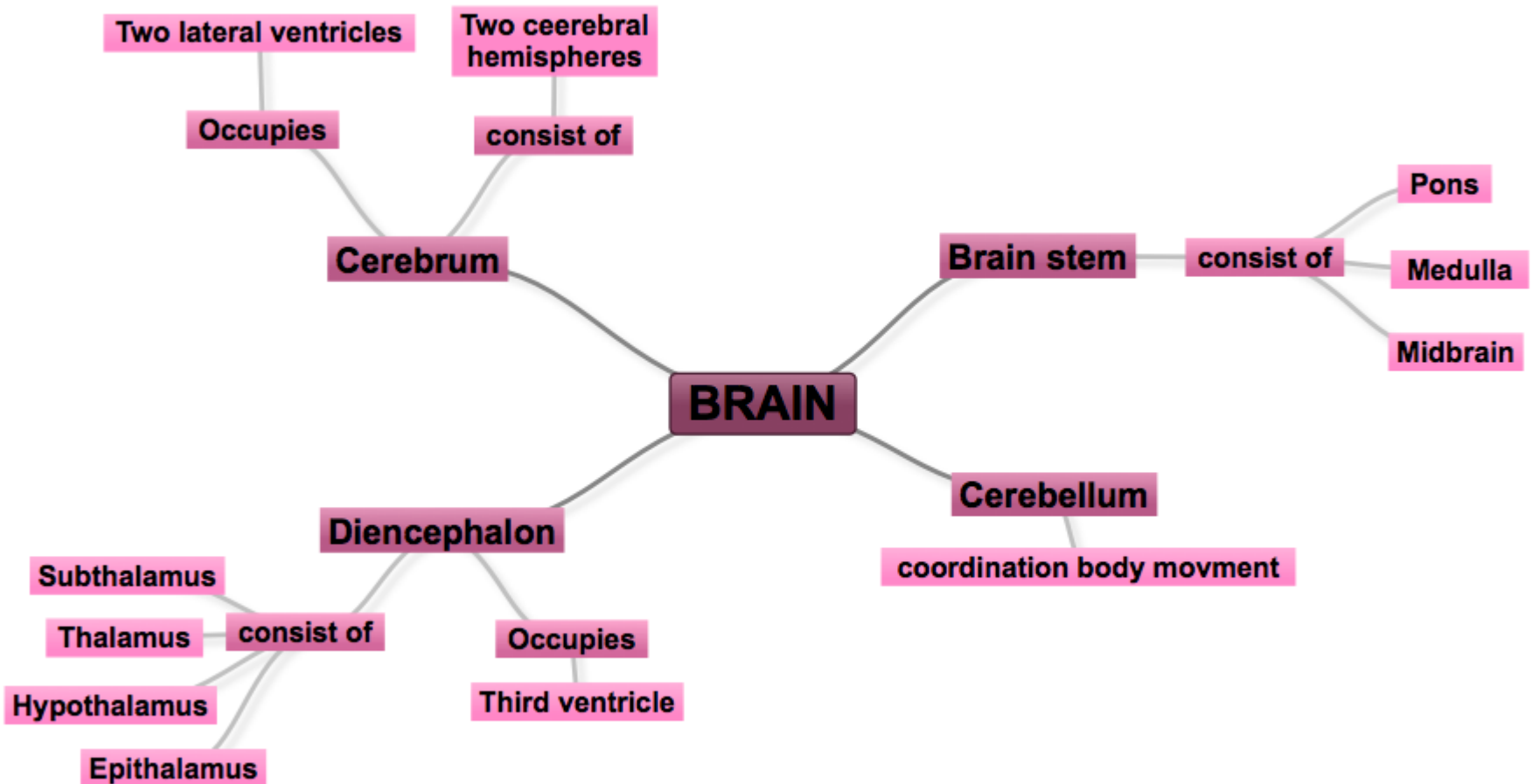


Figure 1.3 Schematic representation of the basic structure of the neurone and the synapse.

*receptive in function

BRAIN'S PARTS



- 4th ventricle : between pons, medulla oblongata & cerebellum.
- Cerebral aqueduct: connects the 3rd to 4th ventricles.

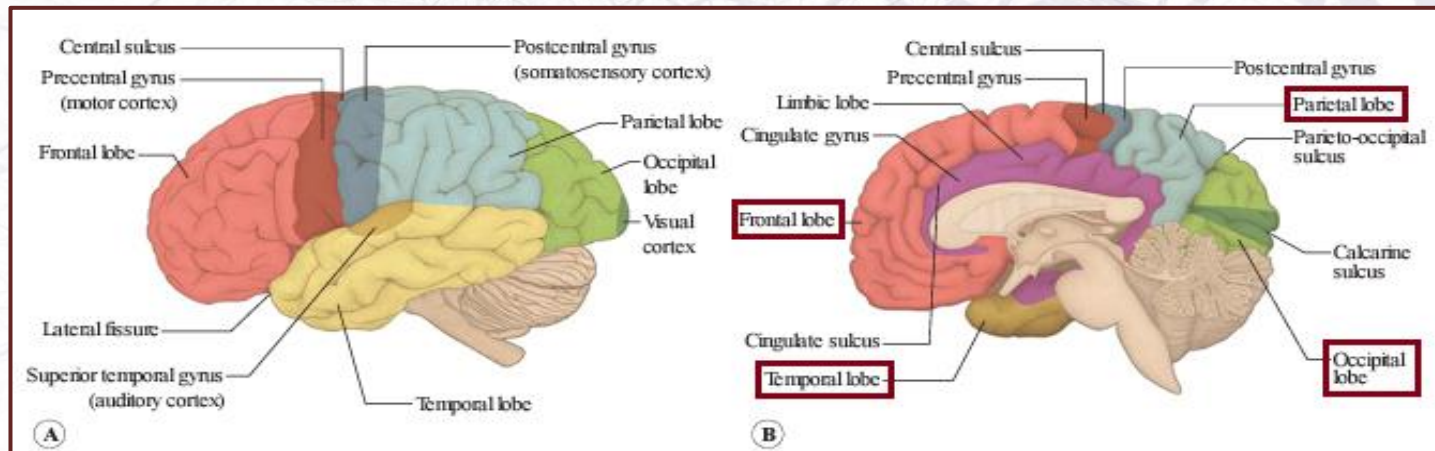
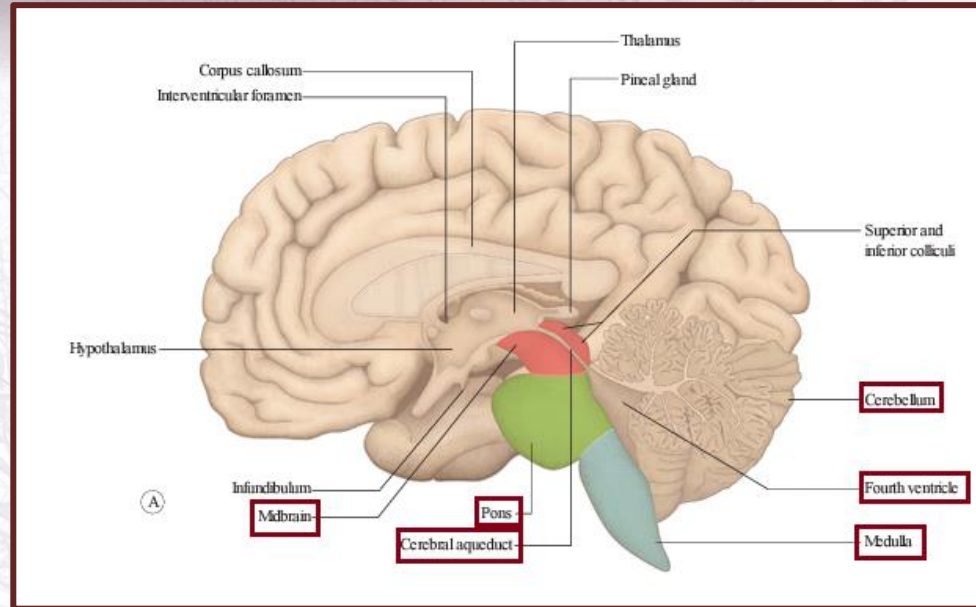
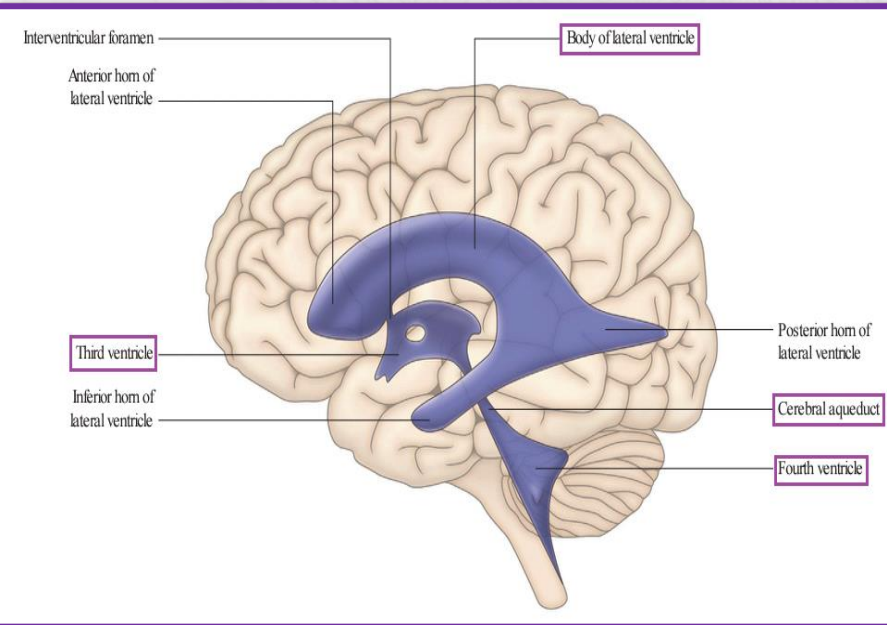
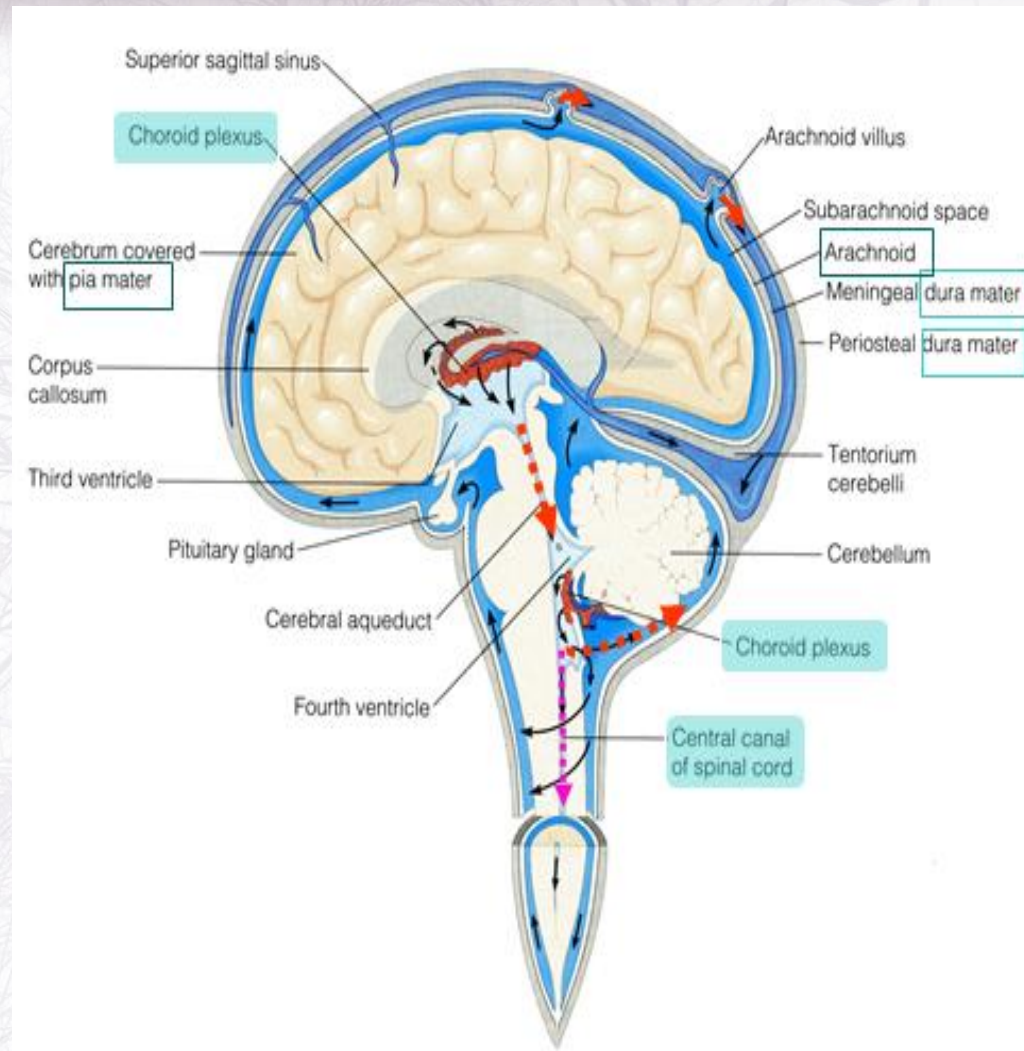


Figure 1.26 Principal gyri, sulci and functional areas of the cerebral cortex. (A) Lateral aspect; (B) medial aspect.

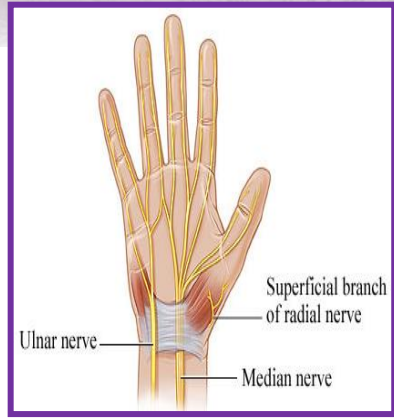
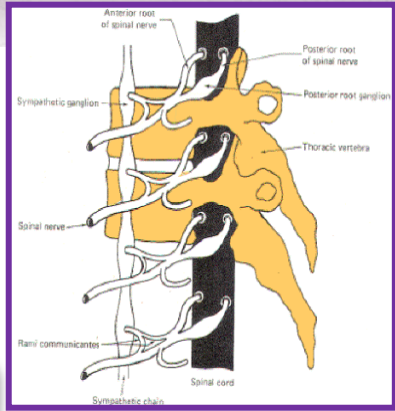
CEREBROSPINAL FLUID

- **CSF** is produced by the **choroid plexuses** inside the ventricle.
- **Inside the brain**, CSF flows from the **lateral ventricles to the 3rd and 4th ventricles**
- From the **4th ventricle**, part of the CSF flows down in the **central canal** of the spinal cord.
- **Most of the CSF** drains from the **4th ventricle** to **distribute** in the **subarachnoid space** around the brain and returns to the **dural sinuses** through the **arachnoids villi**.



NOTES

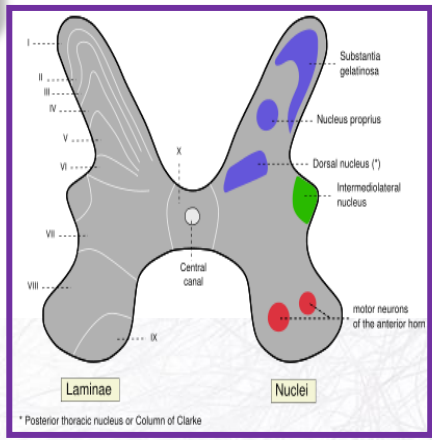
Ganglion
Outside CNS



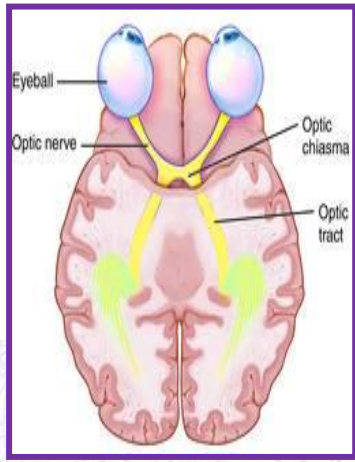
Nerves
Outside CNS

Neurons — **Remember** — **Fibers**

Inside CNS
Nucleus



Inside CNS
Tracts



QUESTION

1- the most inner layer of meninges is :

- A. pia matter
- B. gray matter
- C. Dura matter

2- Regarding the neuroglia which one of following states is incorrect:

- A. have a direct role in information process
- B. constitute major cellular component of nervous tissue
- C. it is essential for normal functioning of the neuron

3- which one of the following produce CSF in the ventricle :

- A. arachnoid villi
- B. choroid plexuses
- C. cerebral aqueduct

Answers :

1.A 2.A 3.B

QUESTION

4- the function of basal nuclei is

- A. regulation of voluntary activities
- B. support transmission process
- C. provides coordination of body movement

5- the third ventricles occupies :

- A. cerebral hemispheres
- B. brain stem
- C. diencephalon

6- brainstem is connected to cerebellum via

- A. forth ventricle
- B. three paired of peduncles
- C. a group of nerve fibers

Answers :

4.A 5.C 6.B