

LEARNING OBJECTIVES

- Distinguish the fissures, sulci, gyri, and lobes of the brain.
- Explain the significance of the different hemispheres of the cerebrum, the corpus callosum, and the function of the commissural, association, and projection fibers
- Identify and describe the primary functions of the cerebral lobes, the basal nuclei, and the limbic system

I. SURFACE ANATOMY OF THE BRAIN**A. Fissures**

1. Transverse

2. Longitudinal

B. Sulci

1. General definition

2. Central sulcus

3. Lateral sulcus

C. Gyri

1. General definition

2. Precentral gyrus

3. Postcentral gyrus

TEXT: _____

FIG: _____

II. CROSS SECTIONAL ANATOMY OF THE BRAIN

A. Gray matter

1. Superficial

2. Deep

B. White matter

1. General definition

2. Commissural fibers

3. Association fibers

4. Projection fibers

III. BRAIN SUBDIVISIONS

IV. FUNCTIONAL ANATOMY OF THE CEREBRUM

A. Lobes of the cerebrum

1. Frontal lobe

a) *Primary motor cortex*

b) *Prefrontal cortex*

2. Parietal lobe
 - a) *Primary somatosensory cortex*

3. Temporal lobe
 - a) *Primary auditory and olfactory cortex*

4. Occipital lobe
 - a) *Primary visual cortex*

5. Insula
 - a) *Primary gustatory cortex*

B. Association areas of the cerebral cortex

1. Definition

2. Somatic sensory association area

3. Visual association area

4. Auditory association area

5. Premotor cortex

C. Integrative Centers

1. Language centers

2. Speech centers

3. Prefrontal cortex

D. Basal Nuclei of the Cerebrum

1. Location

2. Function

E. Limbic System

1. Definition

2. Motivation system
 - a) *Hippocampus*

 - b) *Amygdala*

 - c) *Hypothalamic nuclei*

TRACKING QUESTIONS

1. What is the neural composition of the cerebral cortex? How does this differ from the deeper

regions of the cerebrum?

2. What are the motor and sensory "homunculus"?

3. What is the main functional distinction between a primary area, association area, and integrating center of the cerebral cortex?

4. Explain how commissural fibers, association fibers, and projection fibers enable communication between different regions of the CNS.

5. Briefly describe the consequences of damage to (a) the basal nuclei and (b) the limbic system.

SUMMARY

LEARNING OBJECTIVES

- Identify and describe the primary function of the pineal gland, thalamus, hypothalamus, pituitary, midbrain, pons, medulla, and cerebellum

V. THE DIENCEPHALON

A. Pineal gland of the epithalamus

TEXT: _____

FIG: _____

B. Thalamus

C. Hypothalamus

1. Location

2. Functions

D. Pituitary gland

1. Posterior pituitary

2. Anterior pituitary

VI. ANATOMY OF THE BRAINSTEM

A. Overall function

B. Midbrain

1. Functions

2. Cranial nerves

C. Pons

1. Functions

2. Cranial nerves

D. Medulla oblongata

1. Functions

2. Cranial nerves

VII. THE CEREBELLUM

A. Structure

B. Function

TRACKING QUESTIONS

6. Differentiate the location and function of the thalamus, epithalamus, and hypothalamus.

7. Describe the anatomical and functional relationship between the hypothalamus and pituitary gland.

8. Briefly explain the importance of the reticular formation.

9. Where are the *pyramids* and *decussation of pyramids* located? What is their significance?

10. Identify the autonomic control centers located in the medulla oblongata.

11. Compare/contrast the *folia*, *fissures*, *lobes* of the cerebellum with the analogous structures of the cerebrum.

12. What is the general function of the cerebellum?

SUMMARY