

## Brain and Cranial Nerves

### 1. General Characteristics of the Brain

- Encephalon

#### A. Cranial Meninges

- i. Pia Mater
- ii. Arachnoid
- iii. Dura Mater

#### B. Cerebrospinal Fluid

- i. Choroid Plexus
- ii. Lateral Ventricles
- iii. Third Ventricle
- iv. Cerebral Aqueduct
- v. Fourth Ventricles
- vi. Apertures
- vii. Arachnoid Villi
- viii. General Circulation

2. Brainstem

A. Midbrain (mesencephalon)

i. Corpora Quadrigemina

- a. Superior Colliculi
- b. Inferior Colliculi

ii. Cerebral Peduncles

iii. Cerebral Aqueduct

B. Pons

C. Medulla Oblongata

i. Respiratory Rhythmicity Center

ii. Cardiorespiratory Center

iii. Vasomotor Center

iv. Crossing of Fiber Tracts

D. Reticular Formation

2. Cerebellum

A. Location

i. Peduncles

B. Anatomy

i. Cerebellar Hemispheres

ii. Gyri

iii. Sulci

a. Anatomical Functional Relationship

- iv. Arbor Vitae
  - a. Gray Matter
  - b. White Matter
    - Short Tracts
    - Long Tracts
      - \* Cerebellar Peduncles
    - Naming of Tracts
      - \* Pontocerebellar Track
      - \* Spinocerebellar Track
      - \* Reticulocerebellar Track
      - \* Vestibulocerebellar Track

C. Functions

- i. Synergic Control of Skeletal muscles
- ii. Maintain Posture
- iii. Maintain Equilibrium

4. Diencephalon

A. Thalamus

- i. Functions
  - Limbic System and Amygdala (note part of cerebrum)

- B. Hypothalamus
    - i. Functions
- 
- 5. Cerebrum
    - A. Anatomical Landmarks
      - i. Longitudinal Fissure
        - a. Left and Right Cerebral hemispheres
      - ii. Central Sulcus
        - a. Frontal Lobe
        - b. Precentral Gyrus
        - c. Parietal Lobe
        - d. Postcentral Gyrus
      - iii. Lateral fissure
        - a. Temporal Lobe
      - iv. Parieto-Occipital Fissure
        - a. Occipital Lobe
    - B. Cerebral Cortex

C. Basal Ganglia

i. Amygdala

D. White Matter

i. Association Tracks

a. Parietal Lobe

- Primary Somatosensory Area (on Post-central gyrus)

- Somatosensory Association Area

b. Occipital Lobe

- Primary Visual Area

- Visual Association Area

c. Parietal Lobe

- Primary Auditory Area

- Auditory Association Area

d. Frontal Lobe

- Primary Motor Area

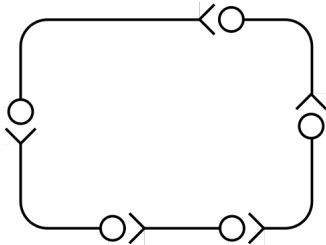
- Premotor Area

- ii. Commissural Tracks
  - a. Corpus Callosum
- iii Projection Tracks
  - a. Ascending (Sensory) Tracts
    - Ie. Spinothalamic Tract
  - b. Descending (Motor) Tracts
    - Ie. Corticospinal Tracts

E. Functions

- i. Sensory Functions
  - a. Primary Somatosensory Area
    - Postcentral Gyrus
- ii. Motor Functions
  - a. Precentral Gyrus
  - b. Premotor Area
- iii. Integrative Functions
- iv. Consciousness

v. Memory



a. Engrams

- Reverberating Circuit

b. Temporary Memory

c. Long Term Memory

C. Hemisphere Differences

i. Left

ii. Right