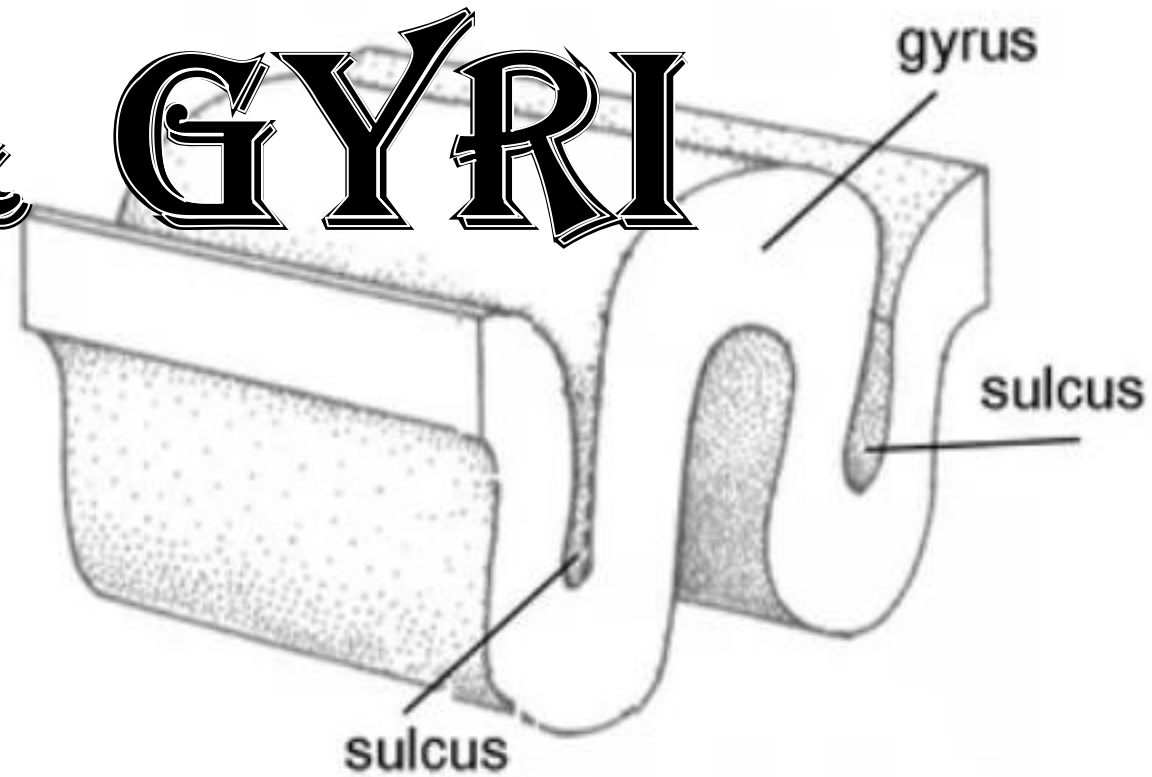
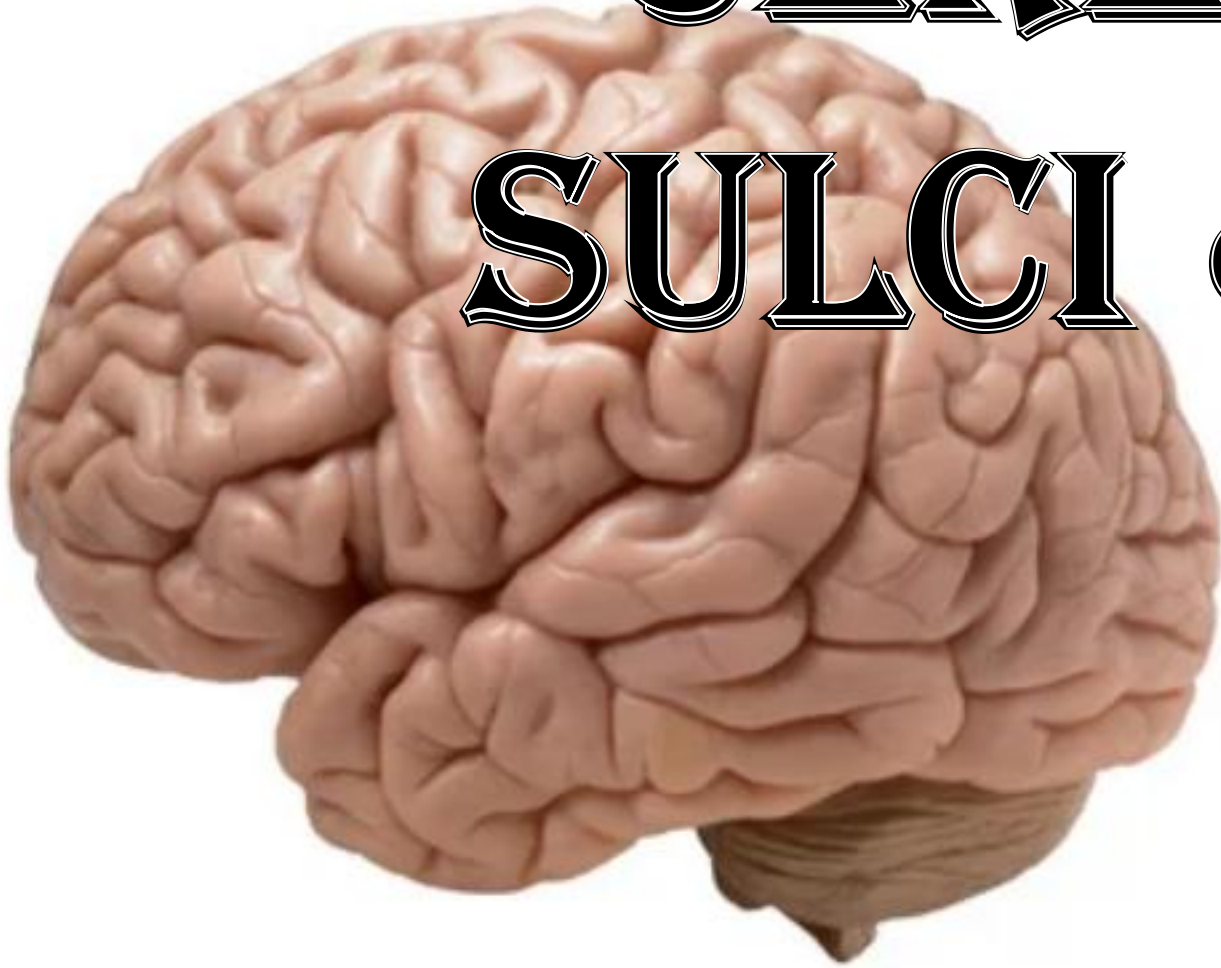


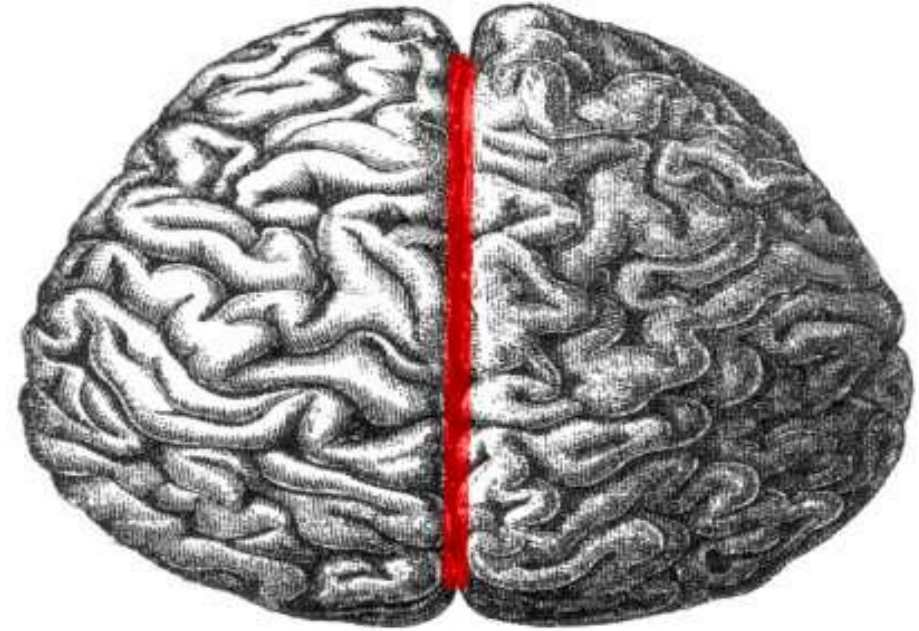
CEREBRUM

SULCI & GYRI



CEREBRUM

- Largest part of human brain
- Divided into two lateral halves- *cerebral hemispheres*
- Two hemispheres separated by median *longitudinal fissure*.
- Band of commissural fibres *corpus callosum* at the bottom of the fissure
- Median longitudinal fissure occupied by *falx cerebri*



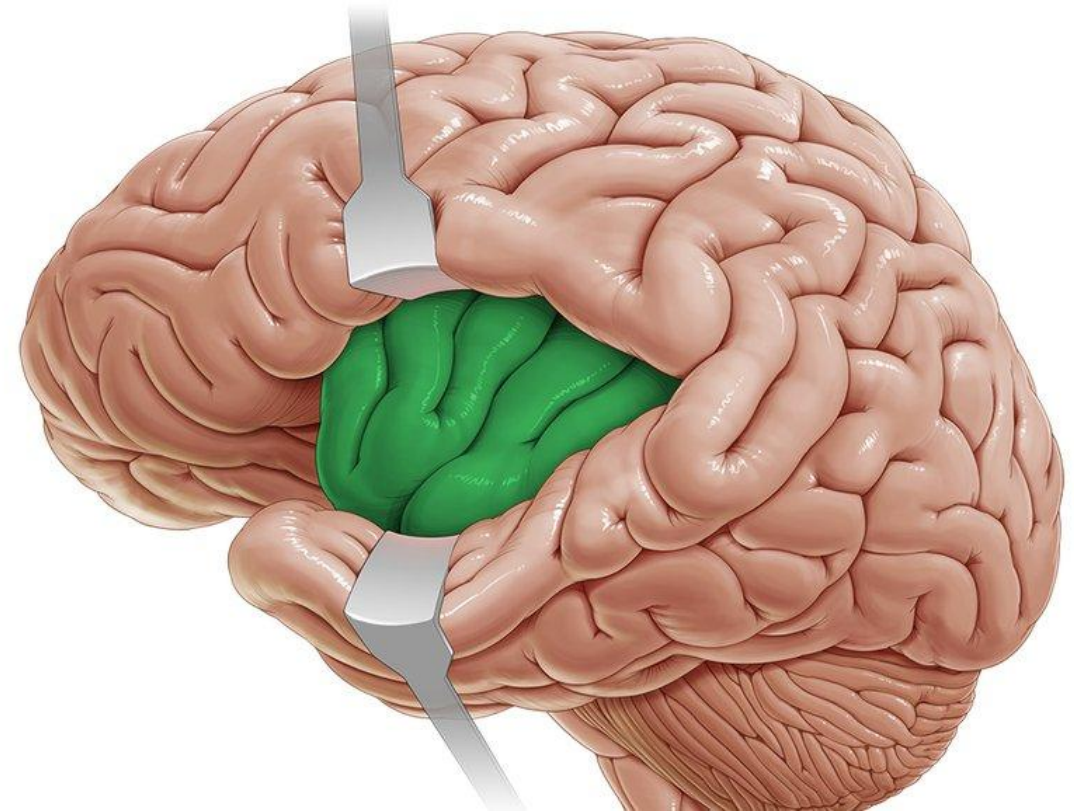
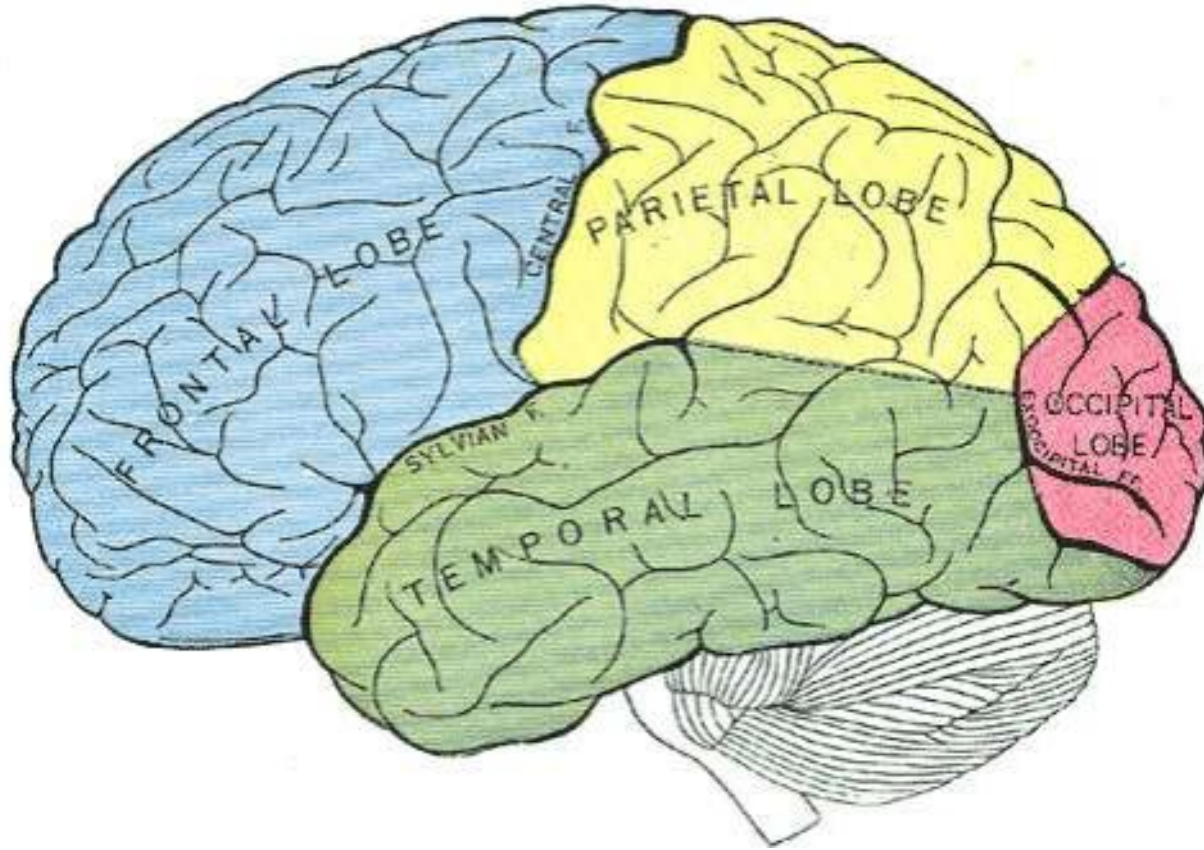
- Each hemisphere has- outer layer of grey matter called *cerebral cortex*, inner mass of *white matter* and large masses of grey matter embedded in basal part of white matter(*basal ganglia*)
- Cavity within it- *lateral ventricle*
- Cortex is folded into numerous **gyri** or convolutions separated by **sulci**
- **Gyrencephalic**
- **1/3 exposed as gyri**
- **2/3 hidden in the walls & floor of sulci**

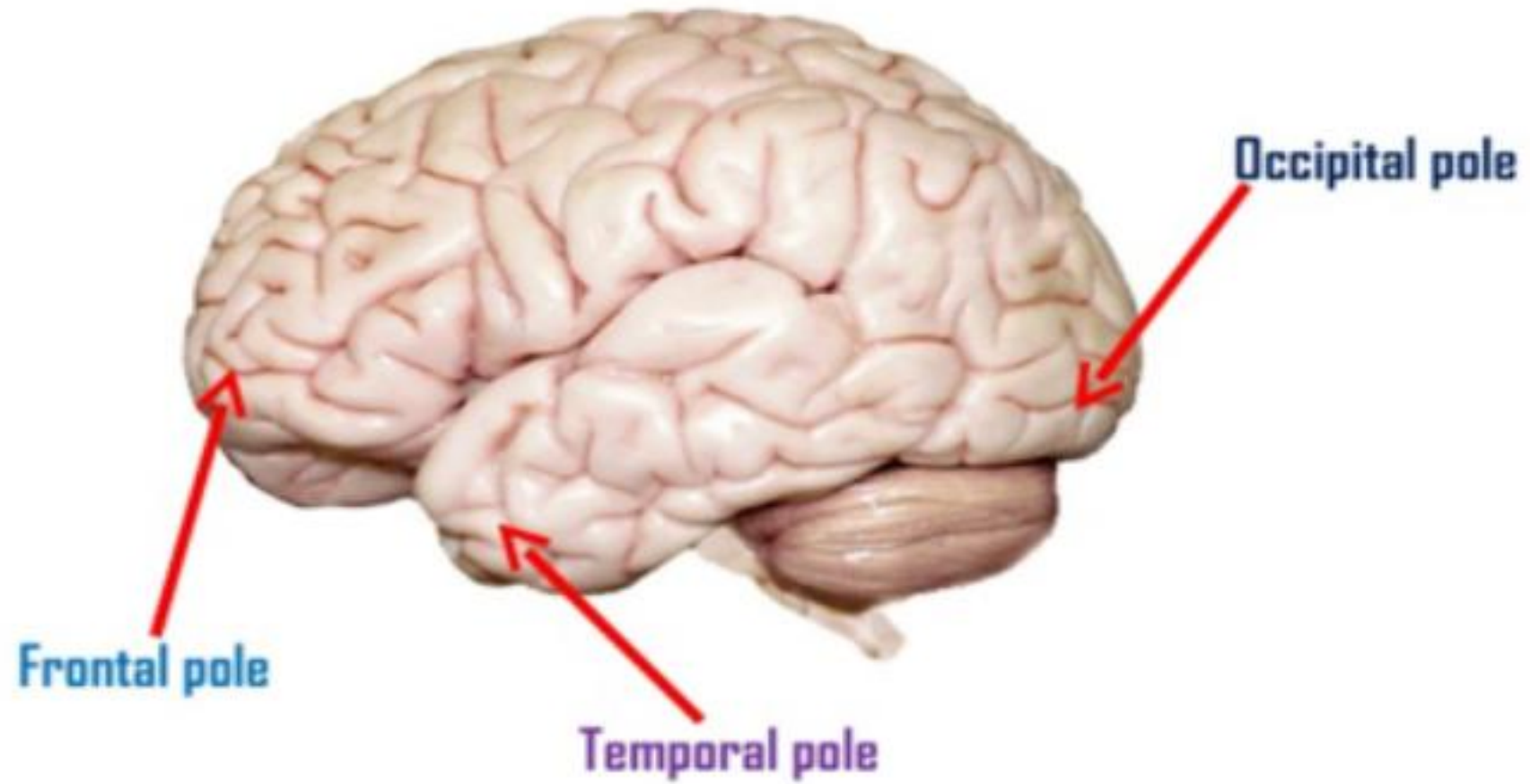
EXTERNAL FEATURES OF CEREBRAL HEMISPHERE

- Includes:
 - poles
 - surfaces
 - borders
 - sulci & gyri



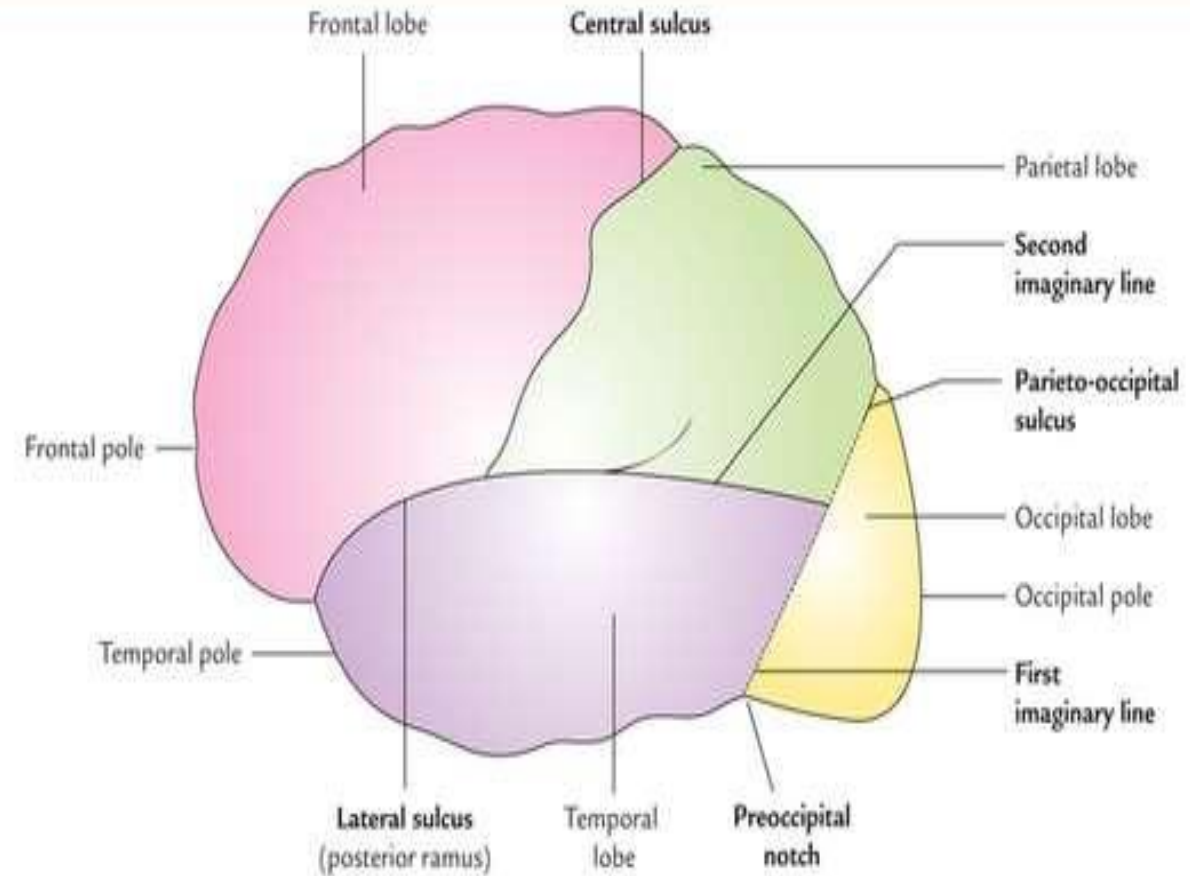
3 POLES & FIVE LOBES



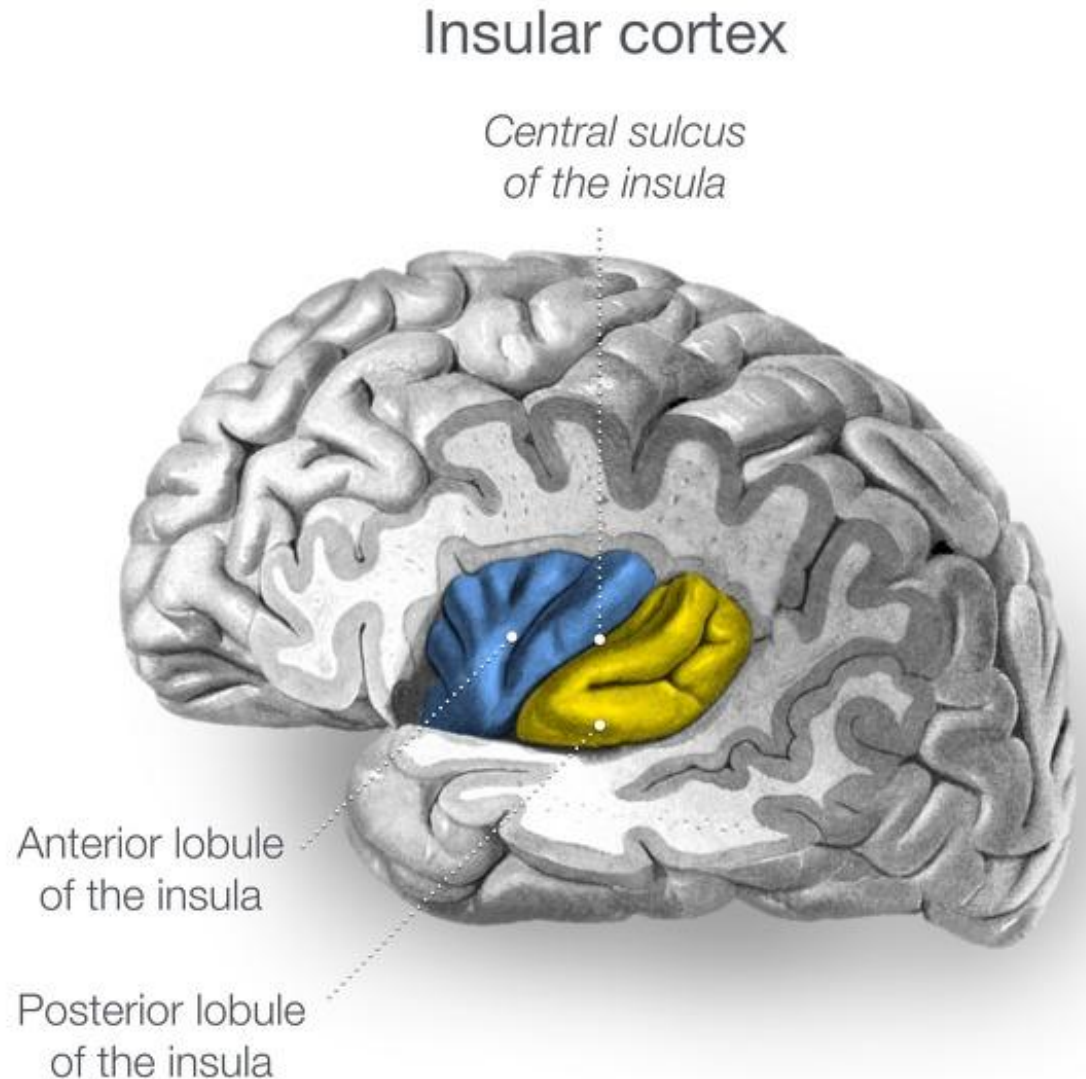


CEREBRAL LOBES

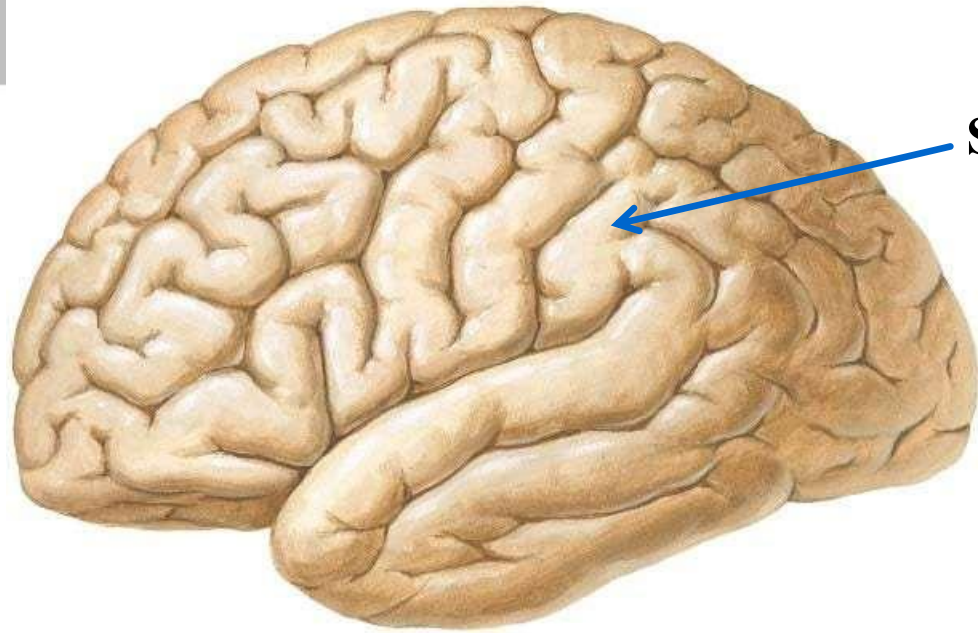
- **Frontal:** anterior to central sulcus & above the posterior ramus of the lateral sulcus
- **Parietal:** bounded in front by the central sulcus, behind by an imaginary line extending from pre-occipital notch to parieto-occipital sulcus.
- **Occipital:** lies behind the vertical line joining the parieto-occipital sulcus and pre-occipital notch.



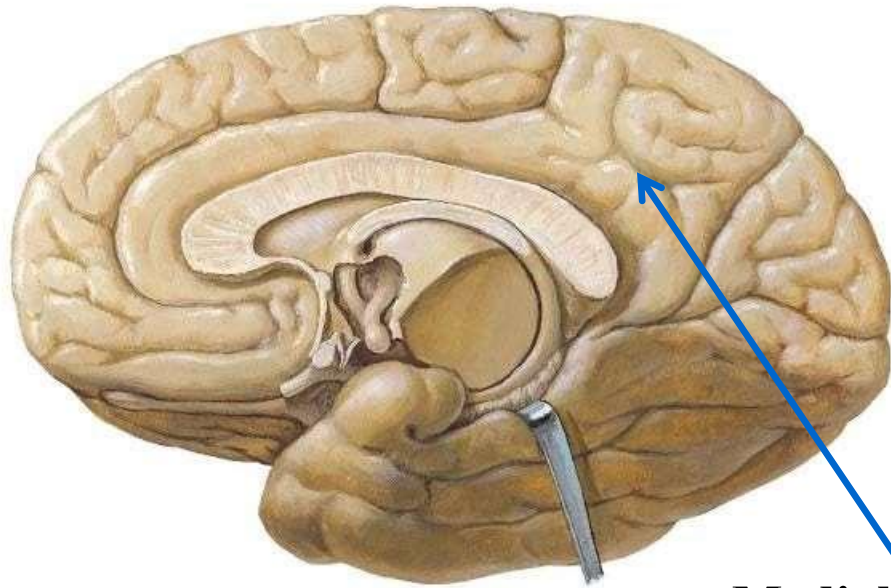
- ***Temporal***: lies below the posterior ramus of lateral sulcus and a line extending backwards from it.
- ***Insular or central lobe***: forms a pyramidal shaped submerged cortex(island of Reil) and lies at bottom of stem and posterior ramus of lateral sulcus



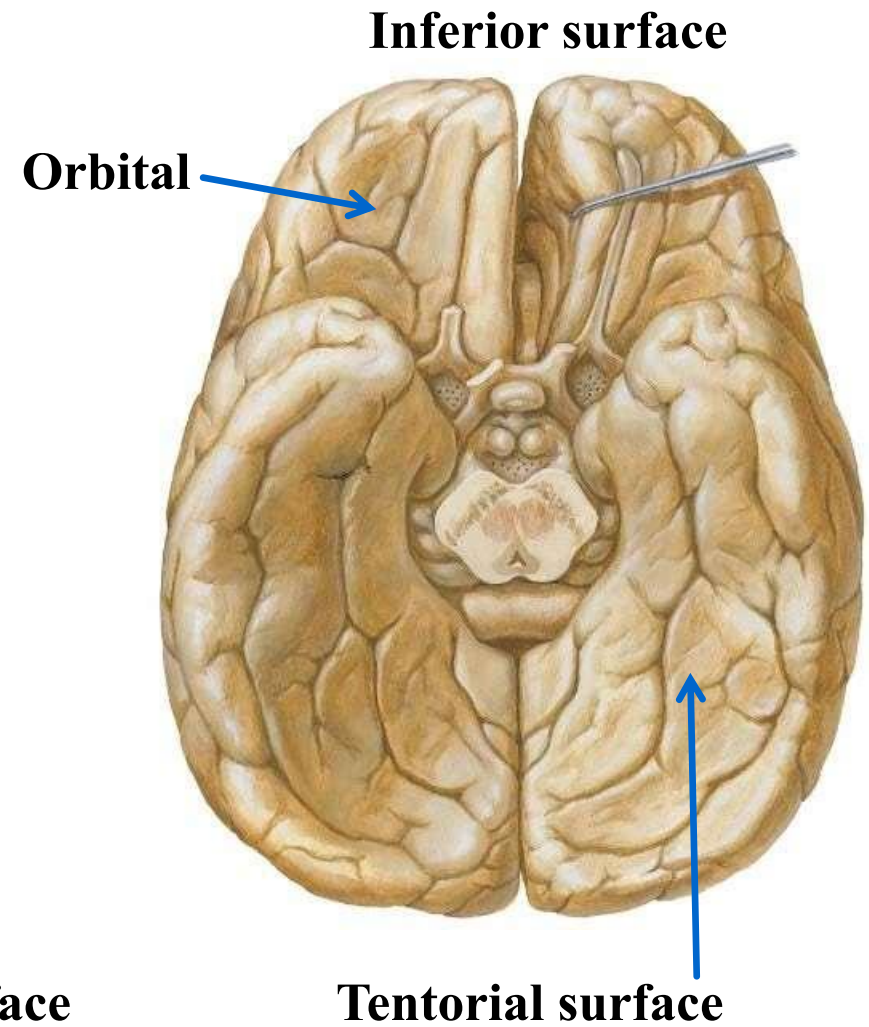
SURFACES



Superolateral surface



Medial surface



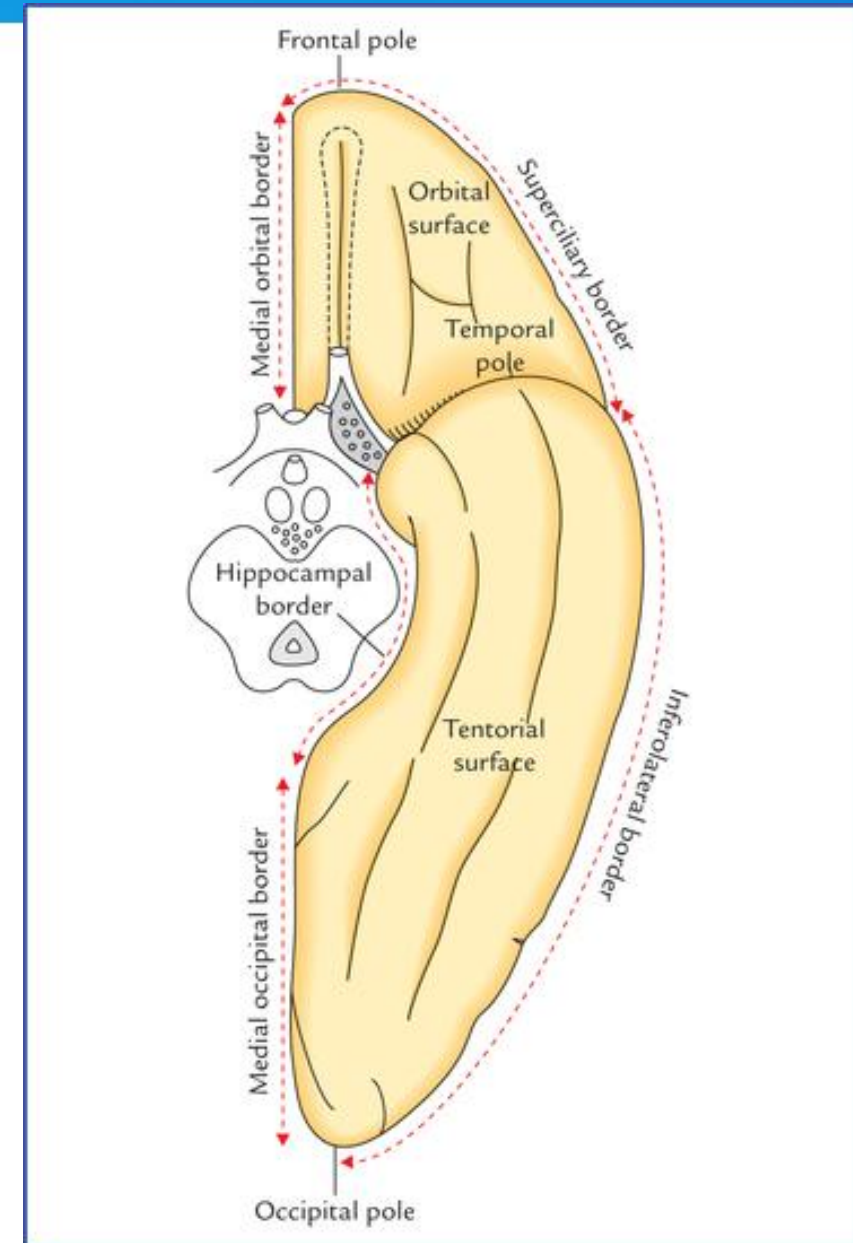
Inferior surface

Orbital

Tentorial surface

BORDERS

- Presents *six borders*:
 - Superomedial border
 - Superciliary border
 - Inferolateral border
 - Medial orbital border
 - Inferomedial/hippocampal border
 - Medial occipital border

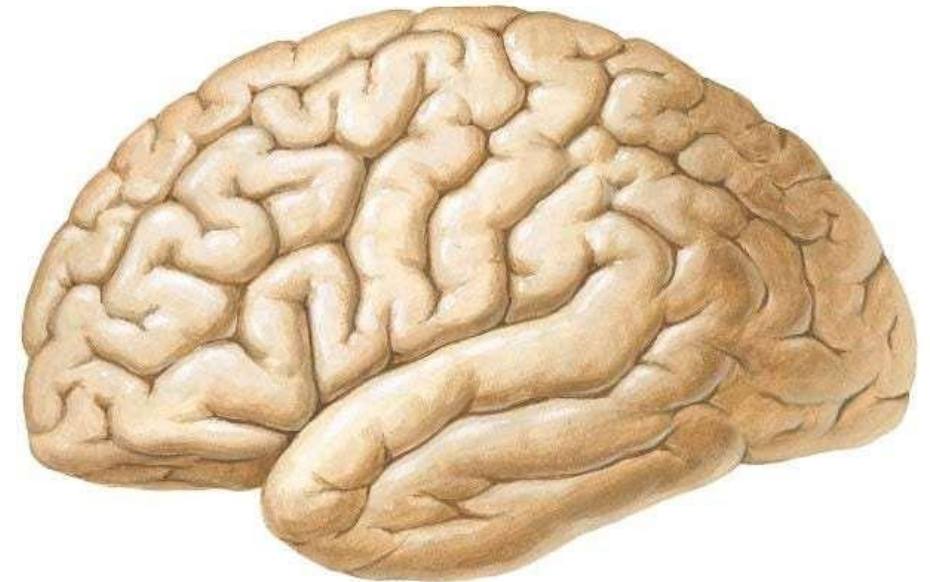
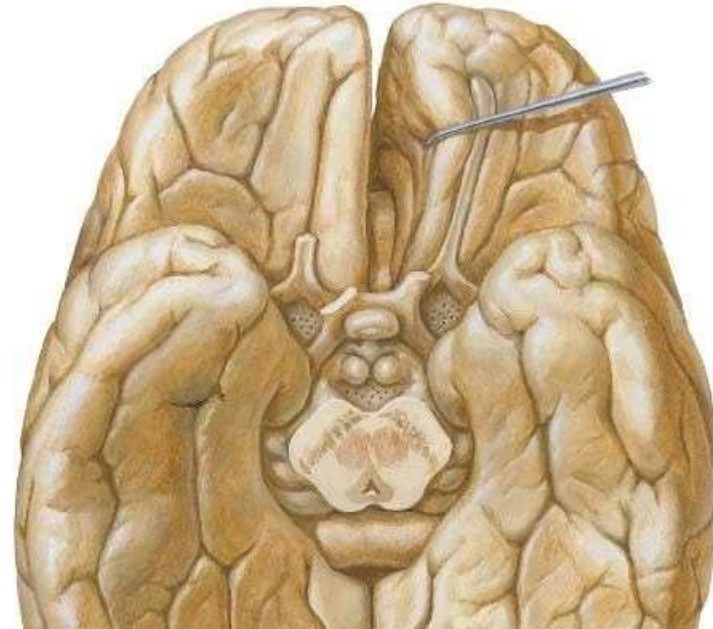


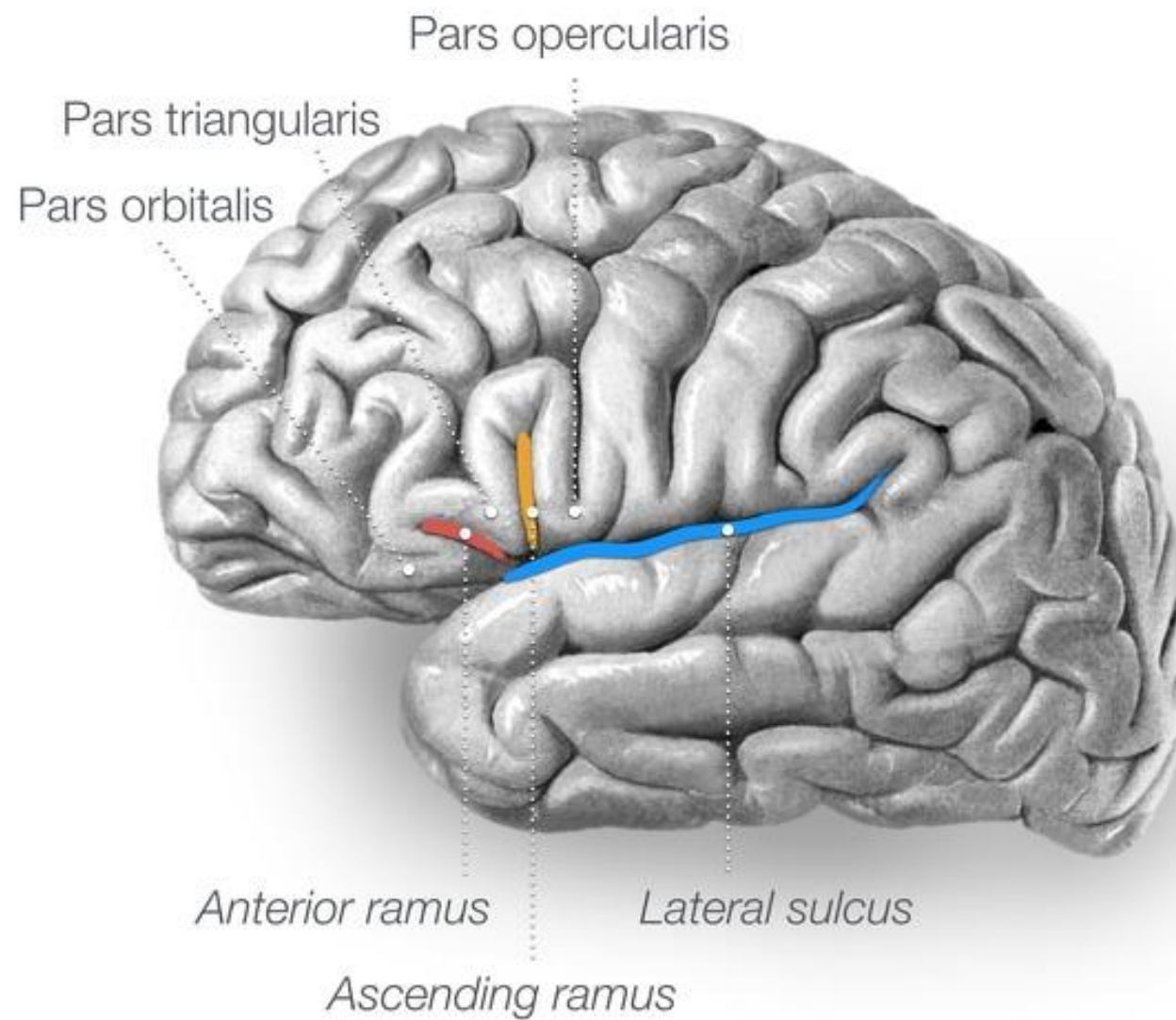
- *Main cerebral sulci:*

1. Lateral sulcus (Sylvius)
 - Stem and 3 rami (posterior, ascending and anterior)
2. Central sulcus (Rolando)
3. Parieto-occipital sulcus
4. Calcarine sulcus

LATERAL SULCUS

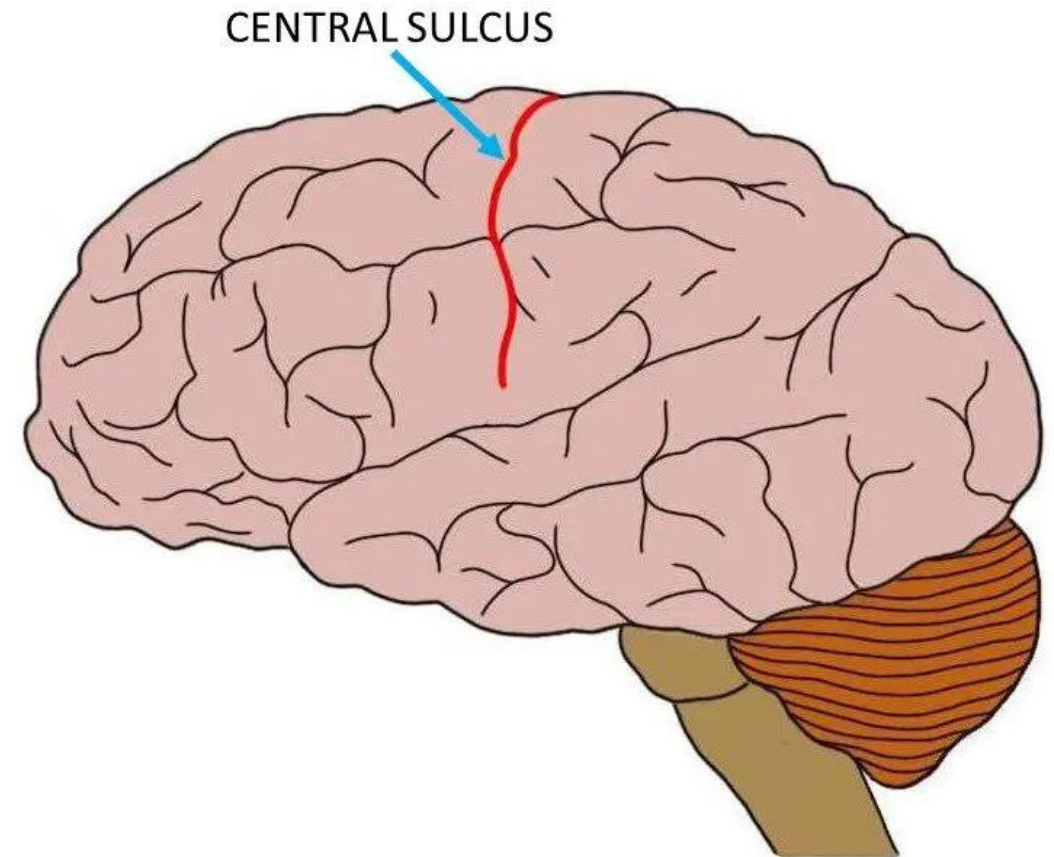
- Stem of the sulci begins as a deep cleft on the inferior surface of the cerebral hemispheres at the anterior perforated substance
- On reaching the superolateral surface it divides into three rami





CENTRAL SULCUS OF ROLANDO

- Superolateral surface
- Begins at the superomedial border about one cm behind the midpoint between frontal & occipital poles.
- Lower end above the posterior ramus of lateral sulcus

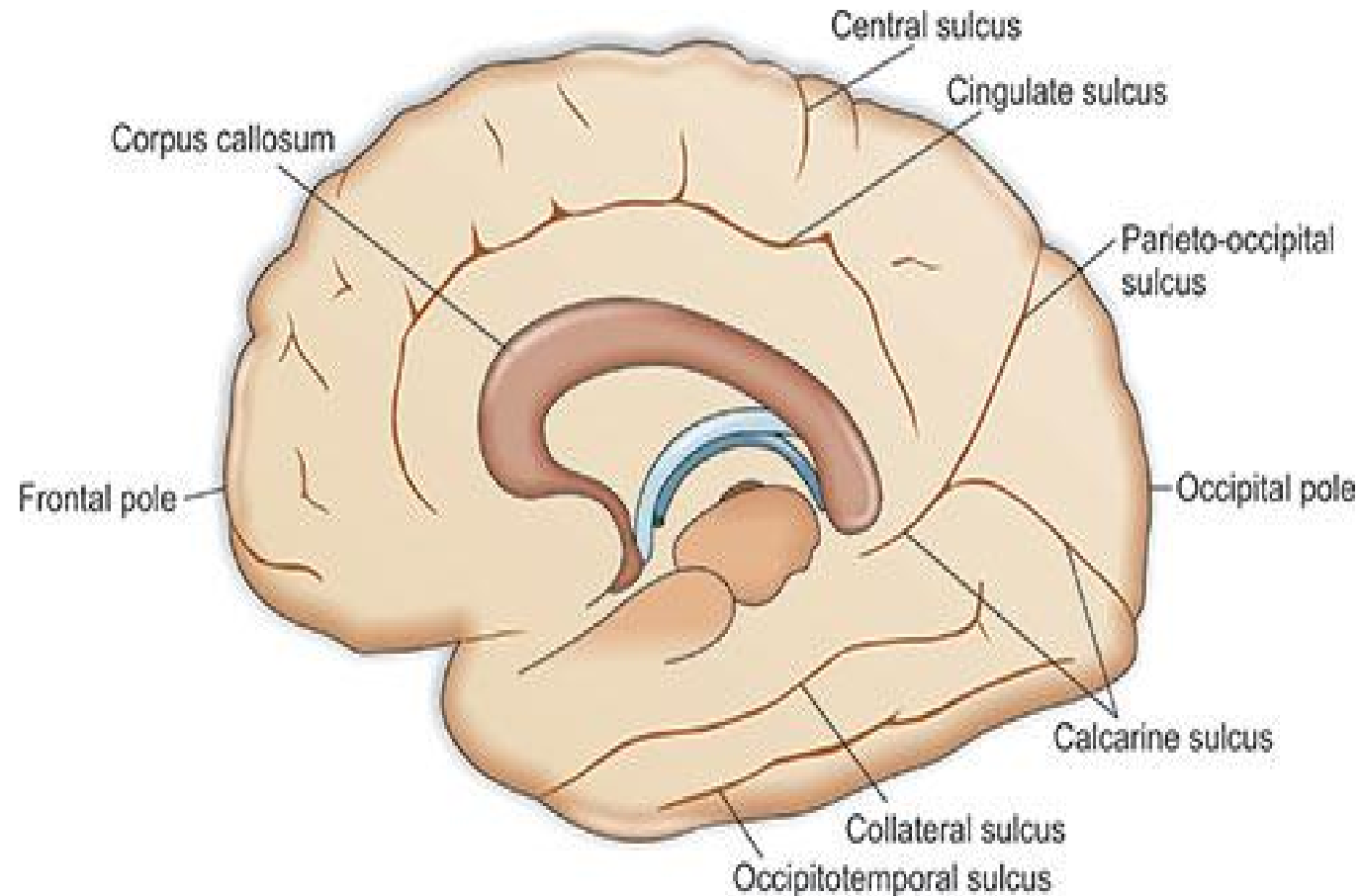


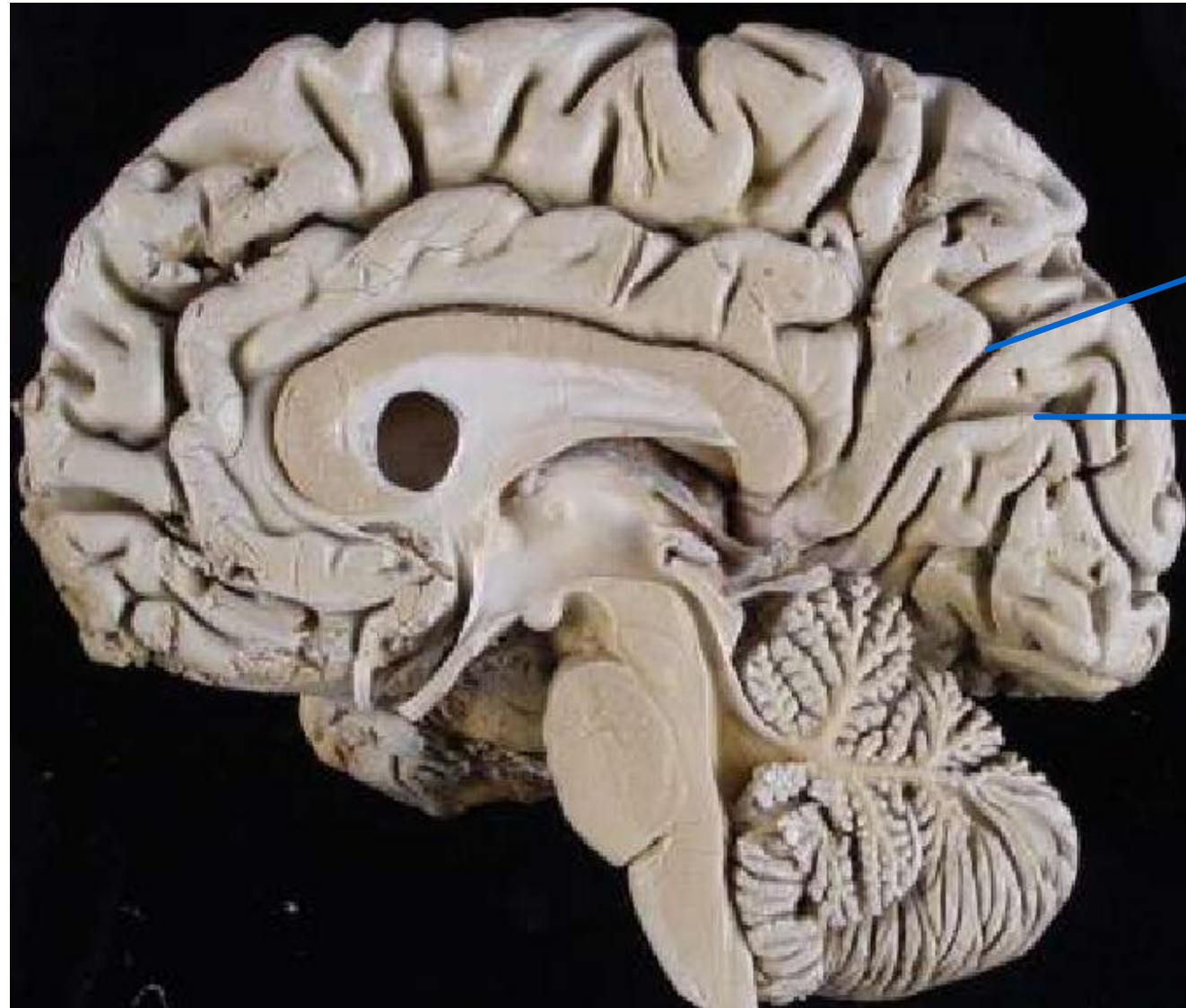
Calcarine sulcus

- Below the posterior end of the corpus callosum and follows an arched course

Parieto-occipital sulcus

- Begins at the midpoint of the calcarine sulcus and courses upwards and backwards to cut the superomedial border in front of the occipital pole





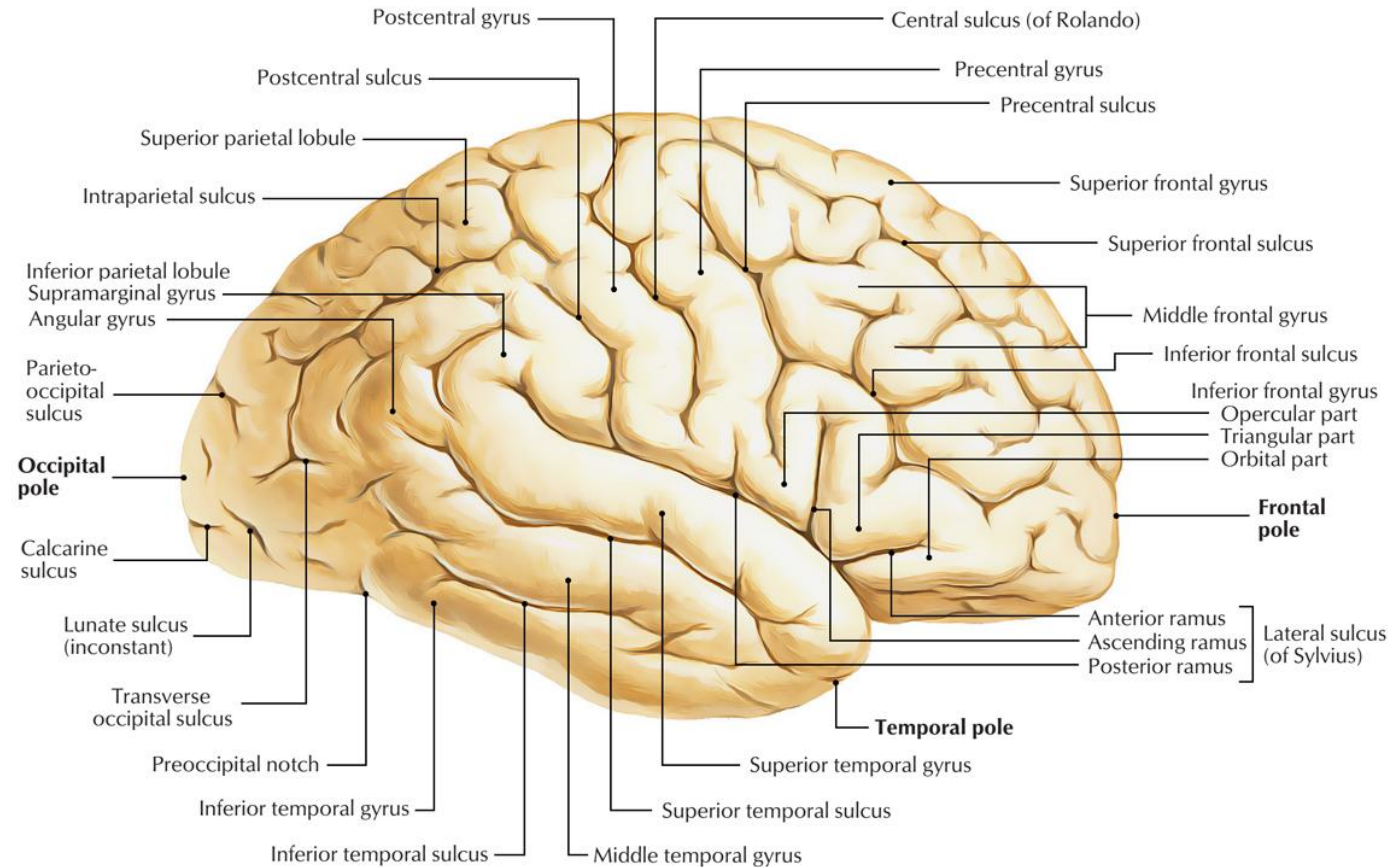
→ **Parieto-occipital sulcus**

→ **Calcarine sulcus**

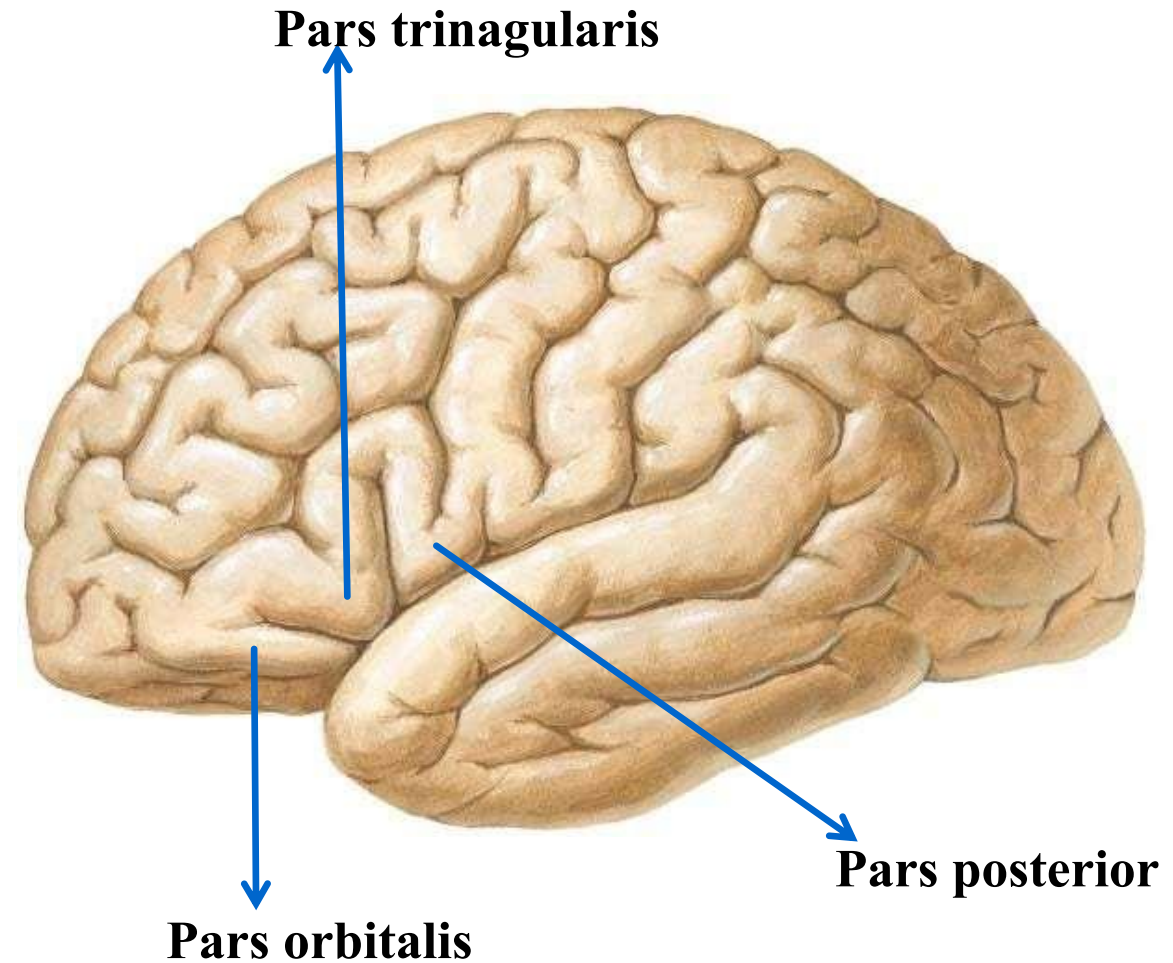
SULCI AND GYRI ON SUPEROLATERAL SURFACE

FRONTAL LOBE

- **Precentral sulcus** – in front and parallel to the central sulcus
- **Superior and inferior frontal sulci** – extend forward from precentral sulcus
- Four gyri – **precentral gyrus & superior, middle, inferior frontal gyri**
- Precentral gyrus continues with paracentral lobule at medial surface

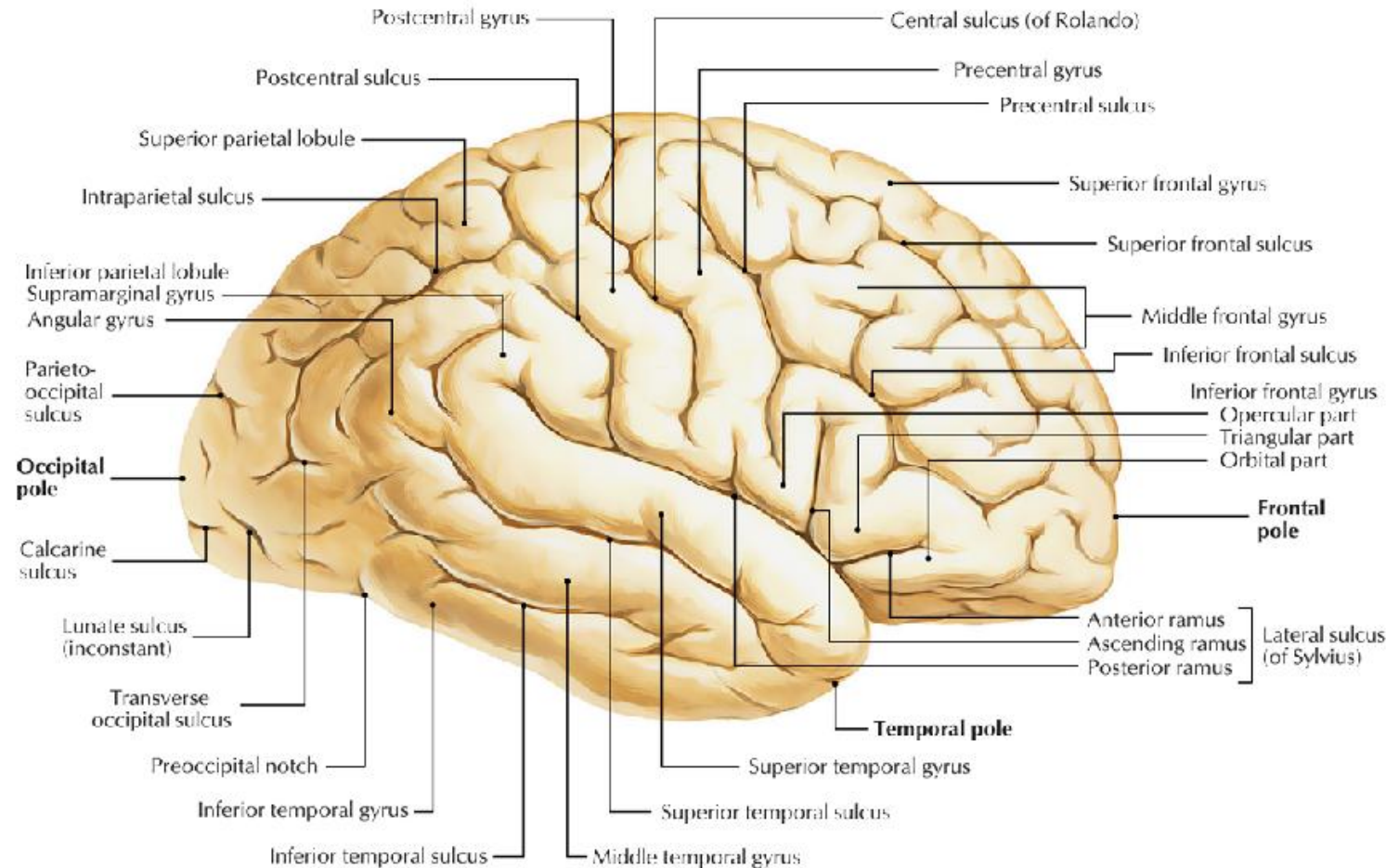


- Anterior and ascending rami of lateral sulcus divides the inferior frontal gyri into 3 areas:
- **pars orbitalis**: below anterior horizontal ramus of lateral sulcus
- **pars triangularis**: between anterior horizontal and anterior ascending rami
- **pars posterior**: behind anterior ascending ramus

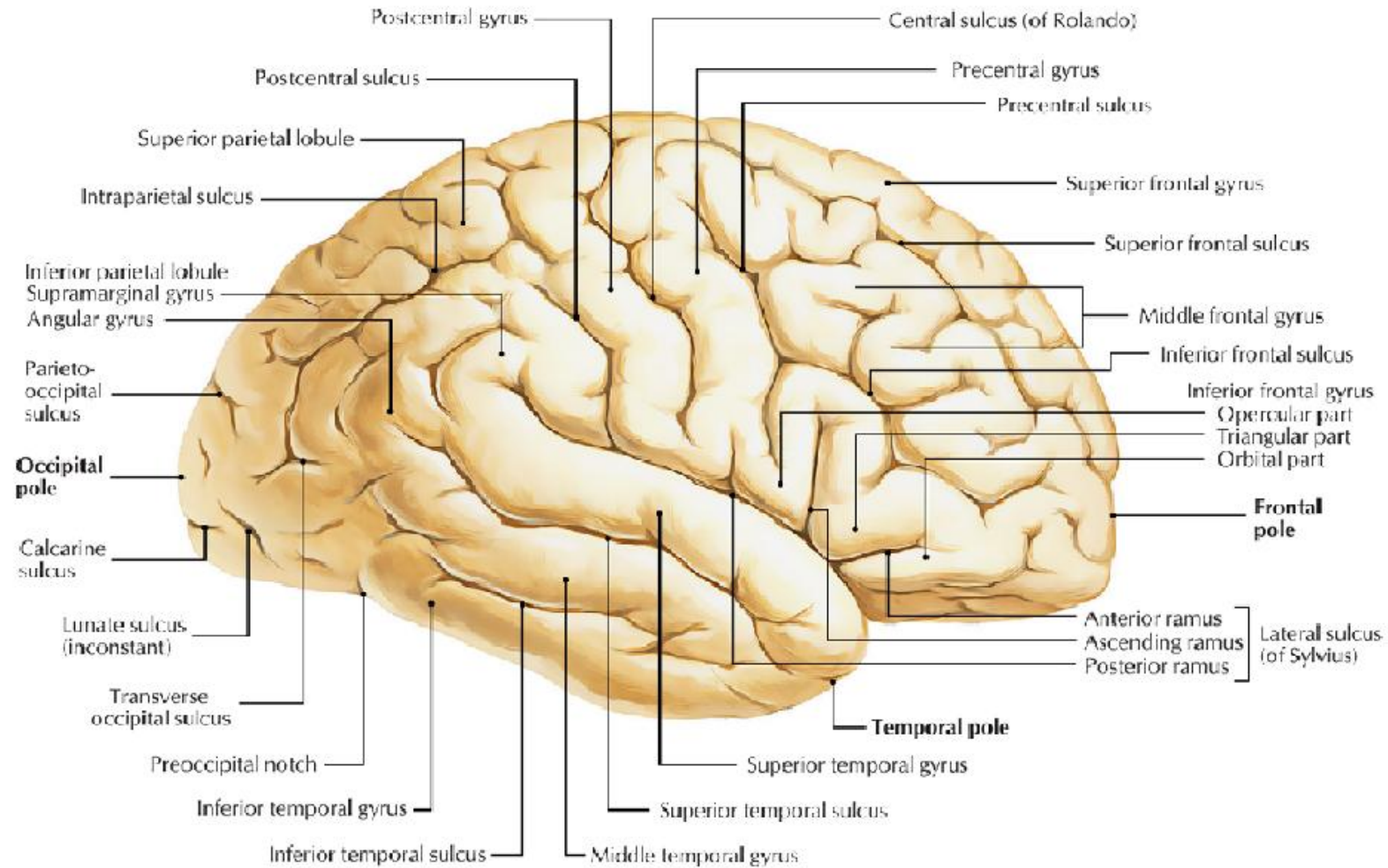


PARIETAL LOBE

- **Postcentral sulcus** – behind and parallel to the central sulcus
- Area between the postcentral and central sulcus-
postcentral gyrus
- **Intraparietal sulcus** – extends backwards :joins transverse occipital sulcus
- Divides the rest of the parietal lobe into *superior and inferior parietal lobule*.

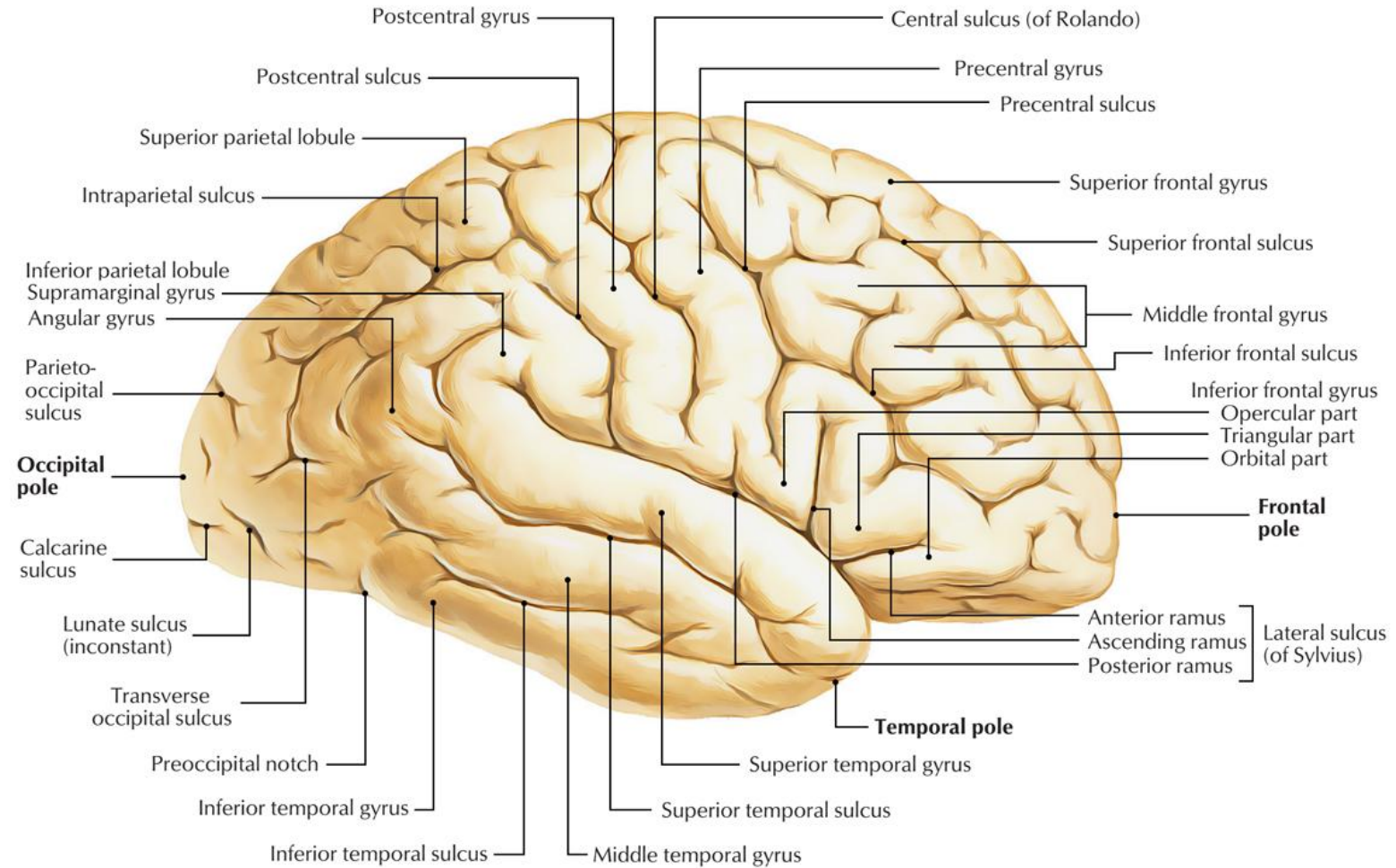


- In inferior parietal lobule, **Supramarginal gyrus** arching over posterior ramus of lateral sulcus and
- **Angular gyrus** over superior temporal sulcus
- Part surrounding the inferior temporal sulcus, the arcus temporo-occipitalis.



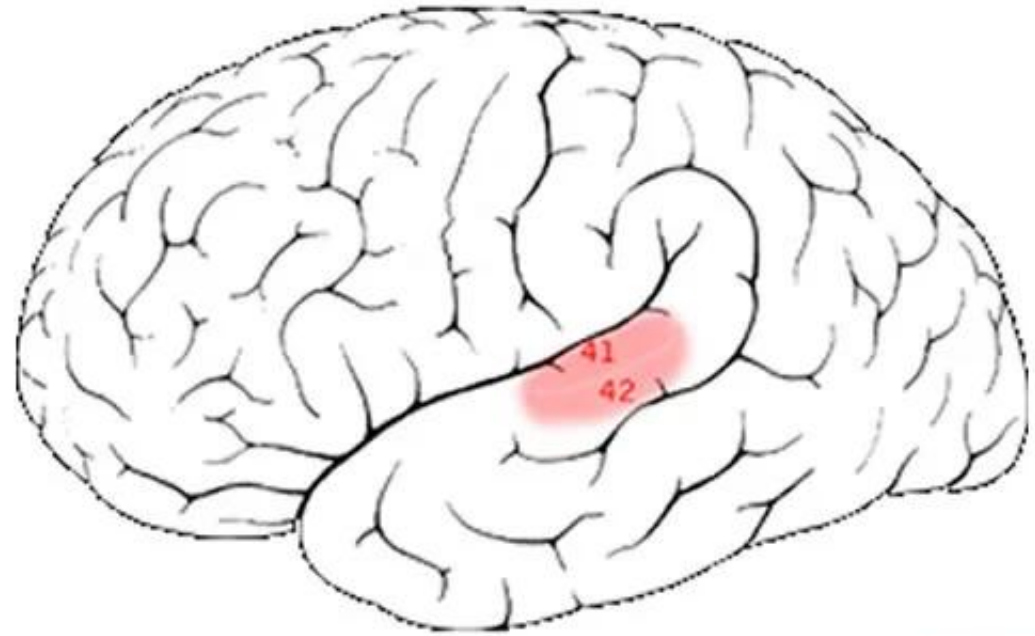
TEMPORAL LOBE

- **Superior temporal sulci**
- **Inferior temporal sulci**
- **Superior temporal gyrus**
- **Middle temporal gyrus**
- **Inferior temporal gyrus**



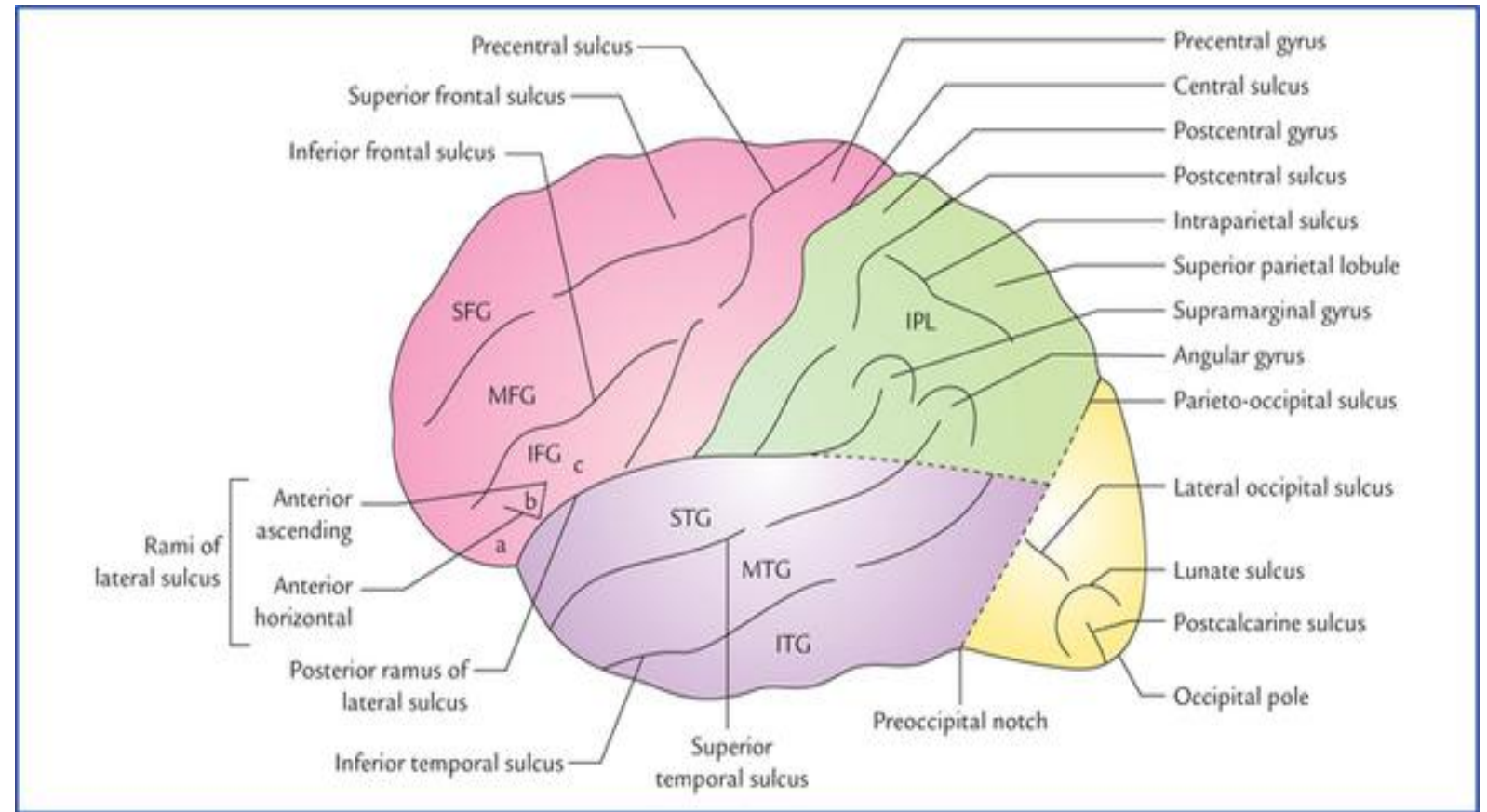
- Superior surface of the superior temporal gyrus presents **two transverse temporal gyri**
- The anterior transverse temporal gyrus is called as the **Heschl's gyrus** which forms the primary auditory area of the cortex

Primary auditory cortex



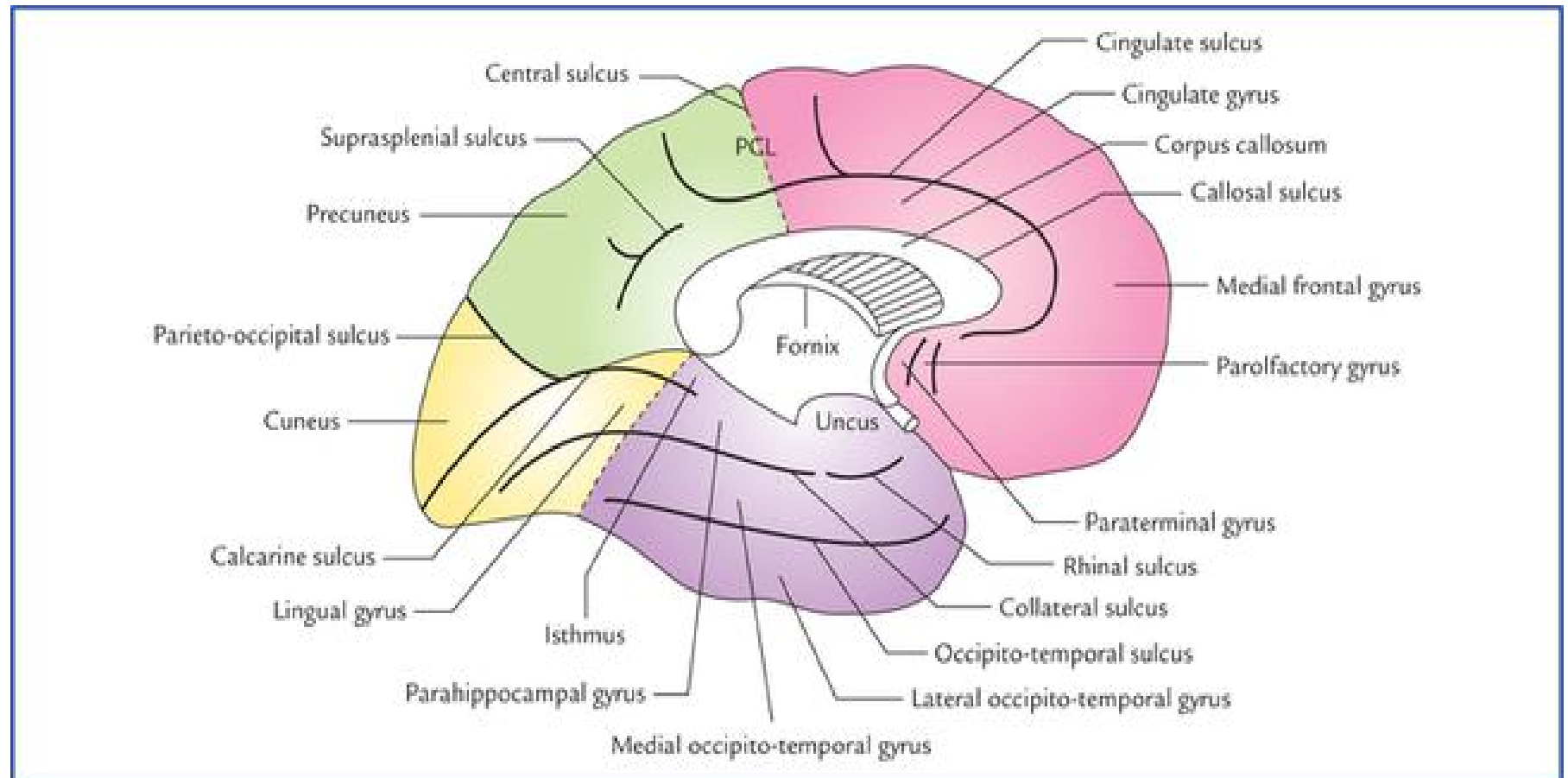
OCCIPITAL LOBE

- **Lunate sulcus** – in front of occipital pole
- **Lateral occipital sulcus** in front of lunate sulcus and divide this lobe into **superior and inferior occipital gyri**
- **Transverse occipital sulcus**—behind the parieto-occipital sulcus

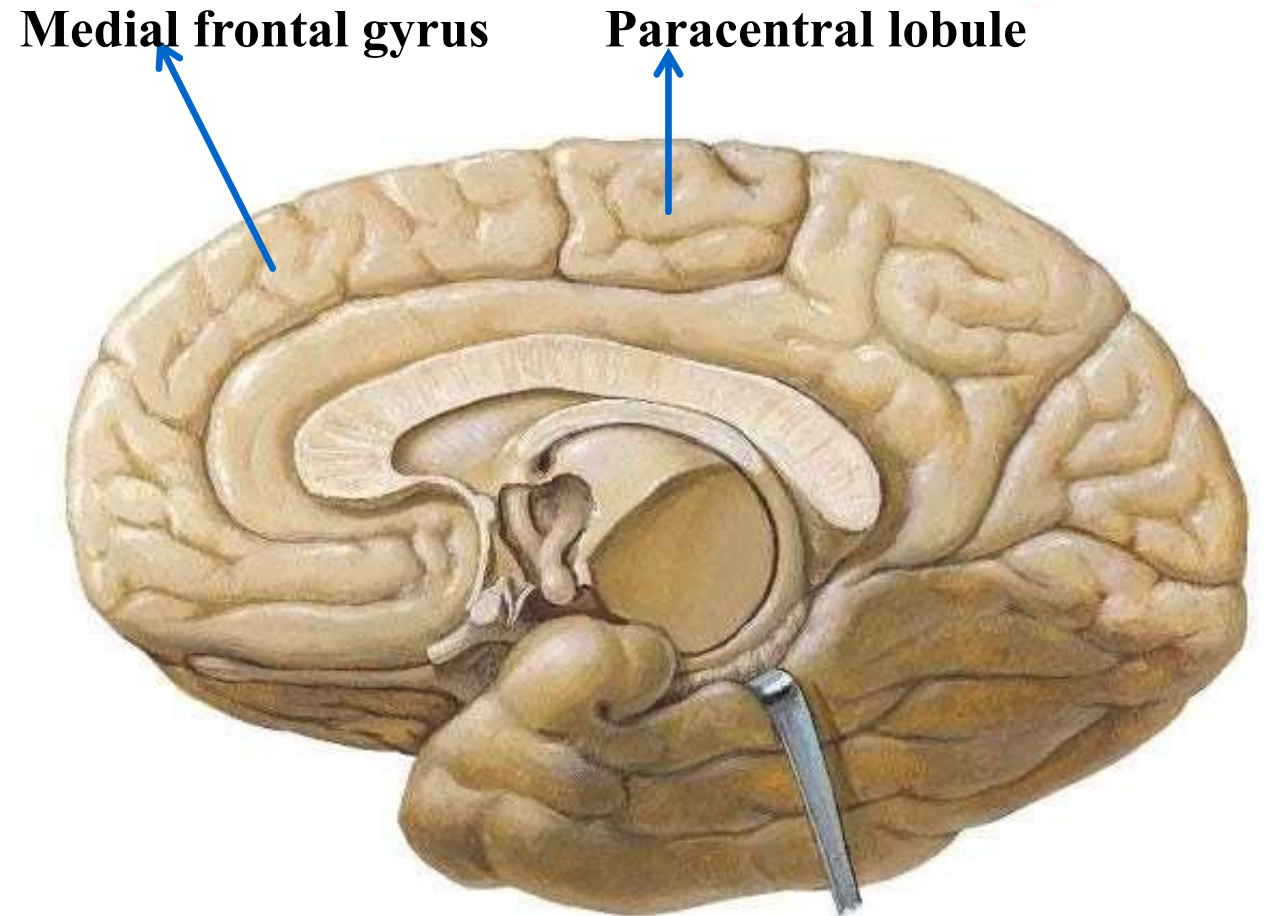


SULCI AND GYRI ON MEDIAL SURFACE

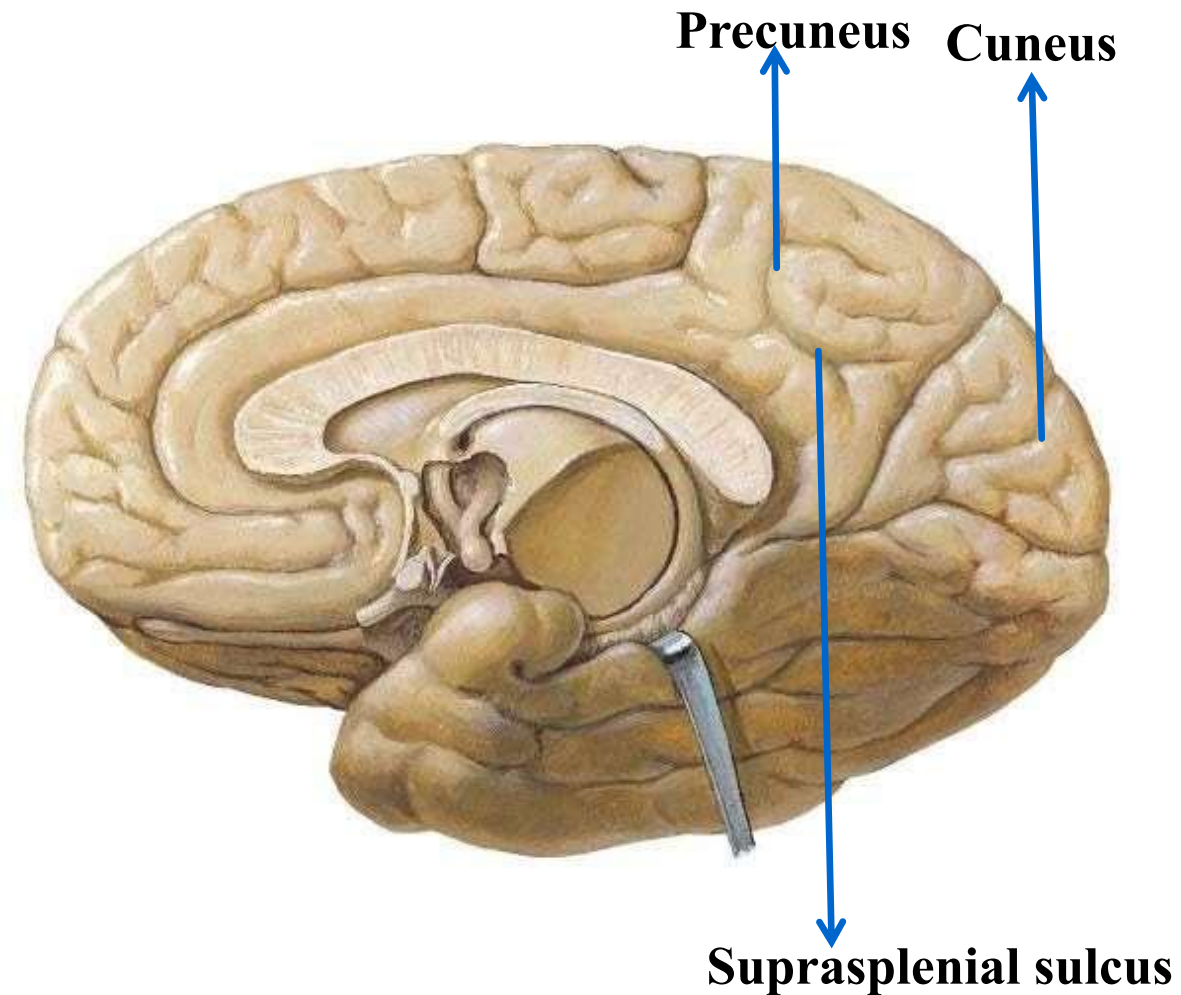
- Cingulate sulcus
- Cingulate gyrus
- Callosal sulcus



- Between the cingulate sulcus and the superomedial border of the hemisphere.
- A small part around the upper part of the central sulcus, the **paracentral lobule** (*cortical centre for micturition and defecation*)
- A large medial part, the **medial frontal gyrus**

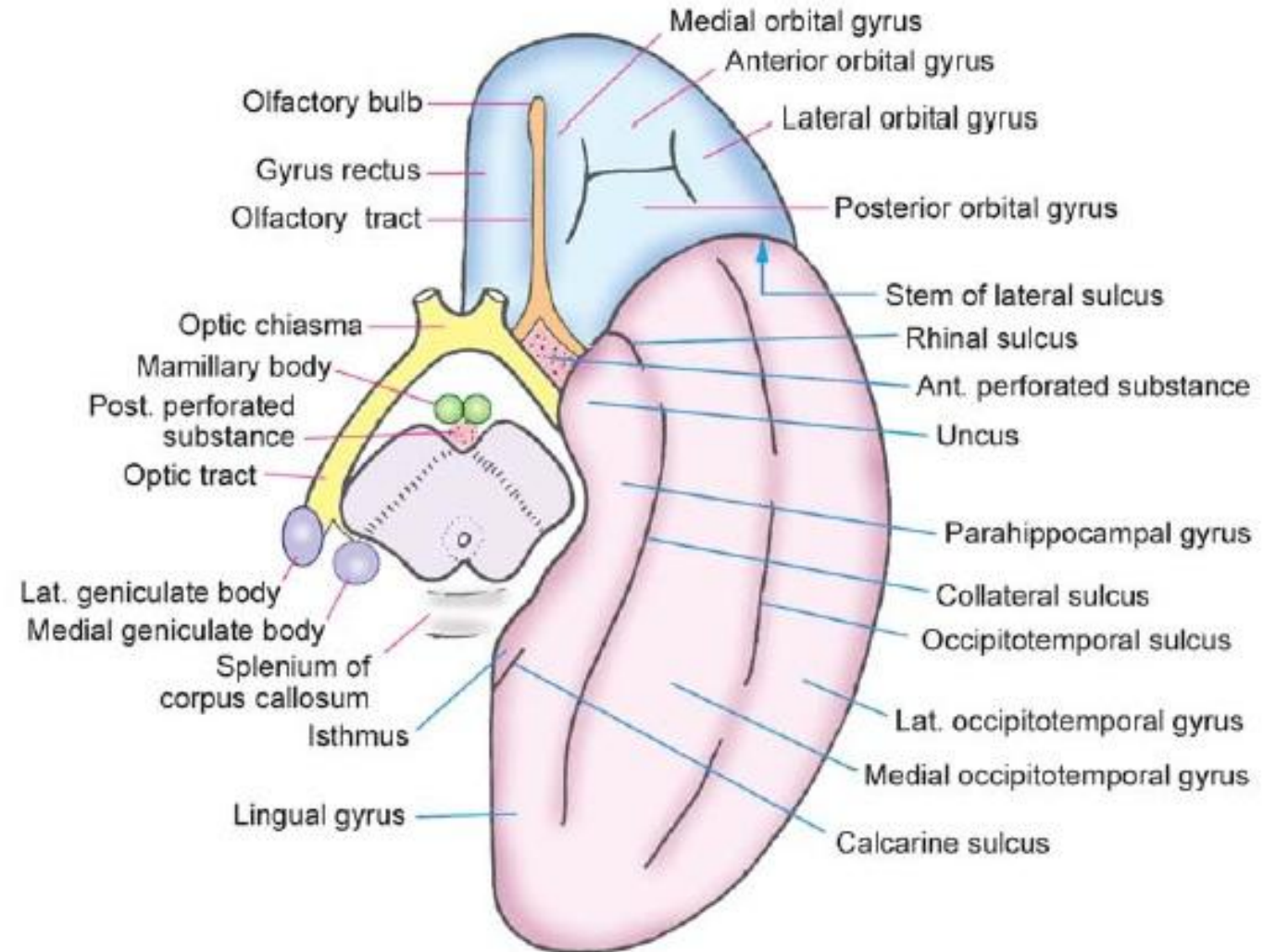


- Post. part of medial surface behind lobule- **calcarine and parieto-occipital sulcus**
- **Cuneus**: triangular area between the posterior part of the calcarine sulcus and the parieto- occipital sulcus
- Isthmus: between the splenium and calcarine sulcus
- Precuneus: quadrangular area between the parietooccipital sulcus and paracentral lobule
- **Suprasplenial sulcus**

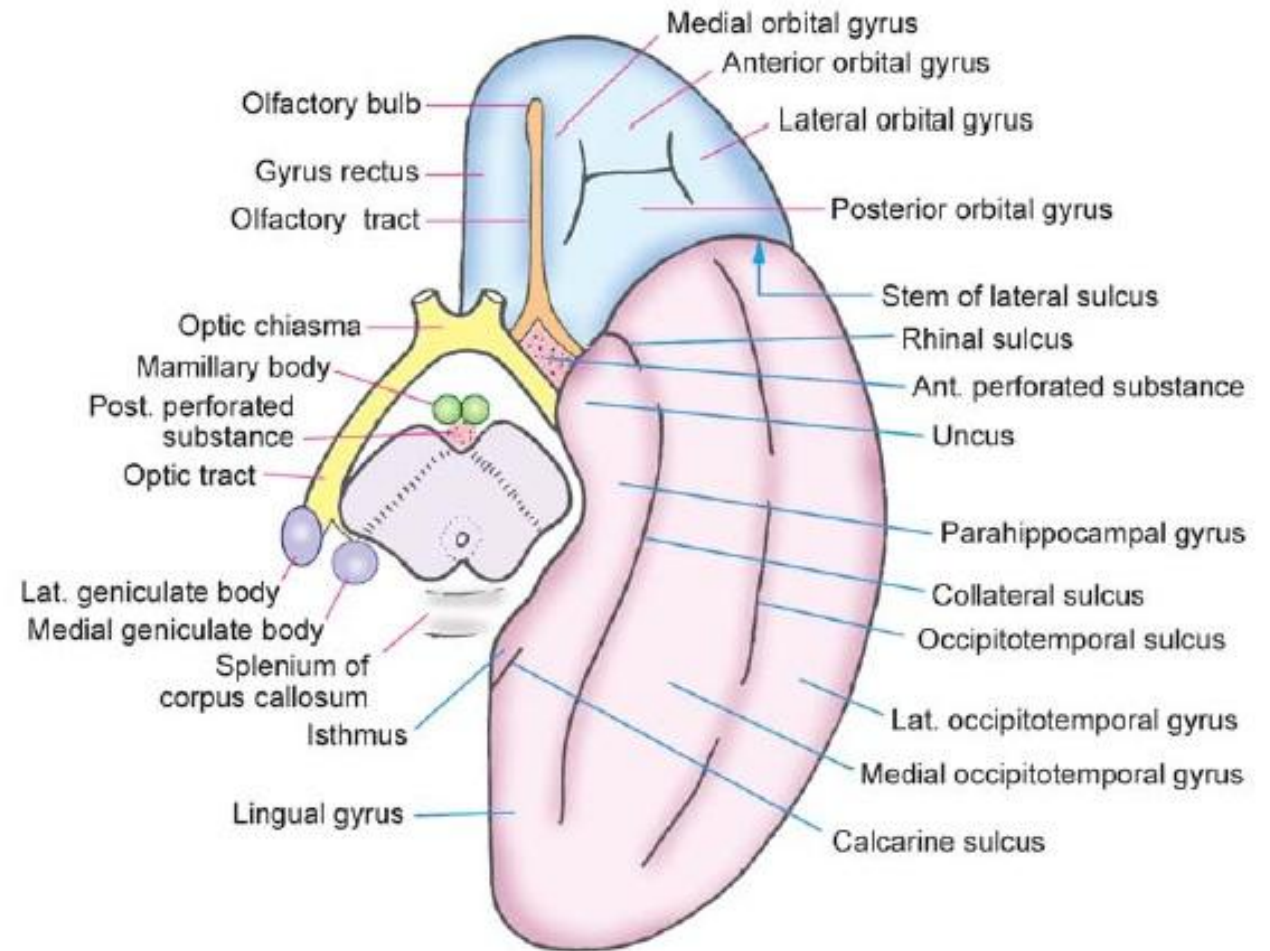


SULCI AND GYRI ON INFERIOR SURFACE

- *On the orbital part of inferior surface :*
- **Olfactory sulcus**
- Area medial to olfactory sulcus- **gyrus rectus**
- **Orbital sulcus** : divides the rest of the orbital surface into **anterior, posterior, medial and lateral orbital gyri**.



- *On the tentorial part of inferior surface:*
- Two major sulci- **collateral sulcus**(medial) and **occipito-temporal sulcus**(lateral).
- Area between calcarine and collateral sulcus- **lingual gyrus**
- Anteriorly lingual gyrus continuous with **parahippocampal gyrus**



- **Rhinal sulcus**- lateral limitation of ant. end of parahippocampal gyrus
- **Uncus**- hook-like ant. end of parahippocampal gyrus
- **Medial and lateral occipito-temporal gyrus**

The background is a solid dark purple. In the center, a stylized tree with a thick brown trunk and thin, branching limbs is positioned. The text "Thank You" is written in a white, serif font across the middle of the tree's trunk. In the top-left and bottom-right corners, there are stylized brown neurons with multiple branching processes.

Thank You