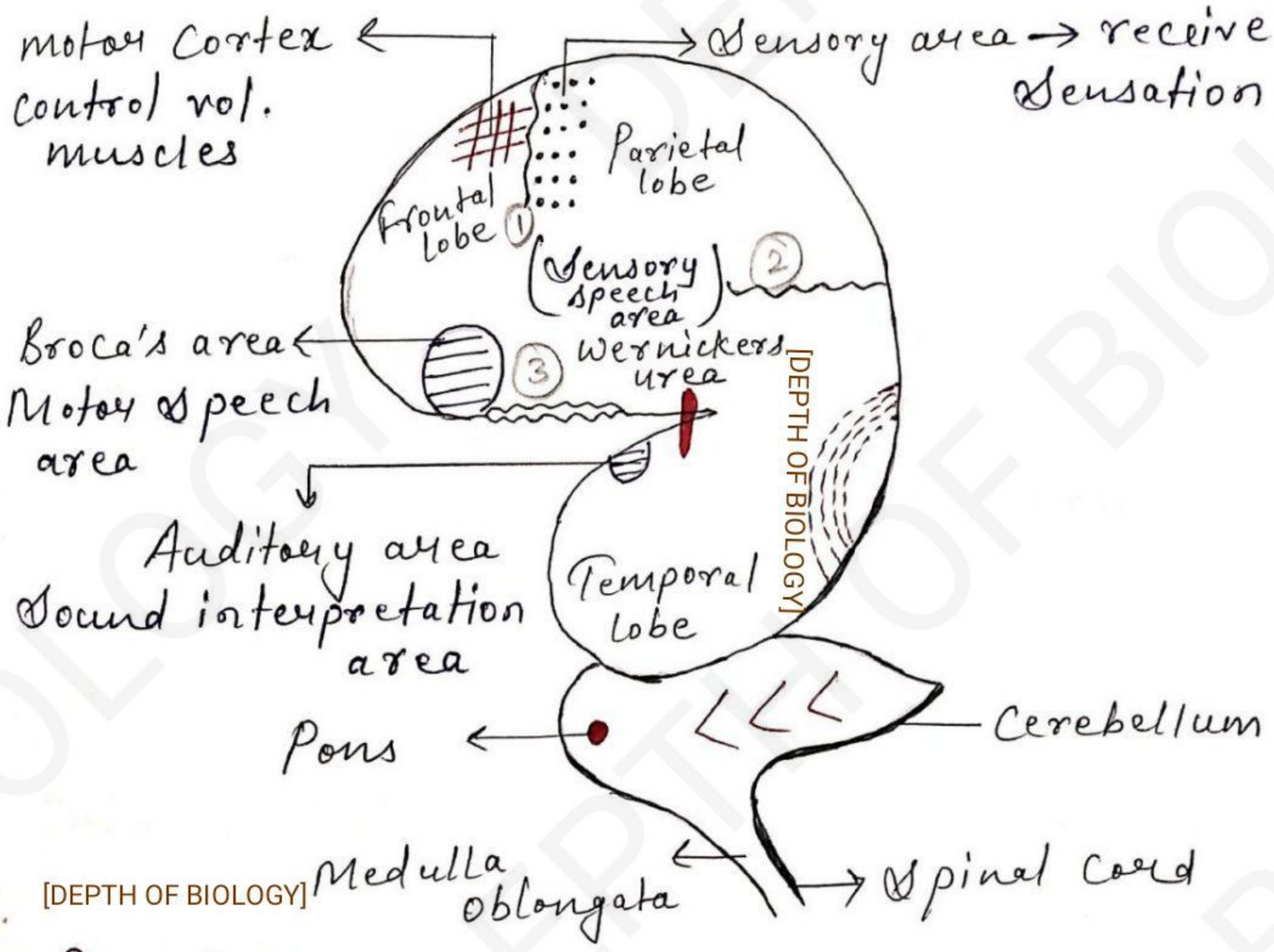
CNS
↓
Brain

Protected in cranial cavity

↳ Made up of
- 1 frontal bone
- 2 parietal
- 2 temporal
- 1 occipital

Weight of brain ⟶ ♀ = 1250 gm

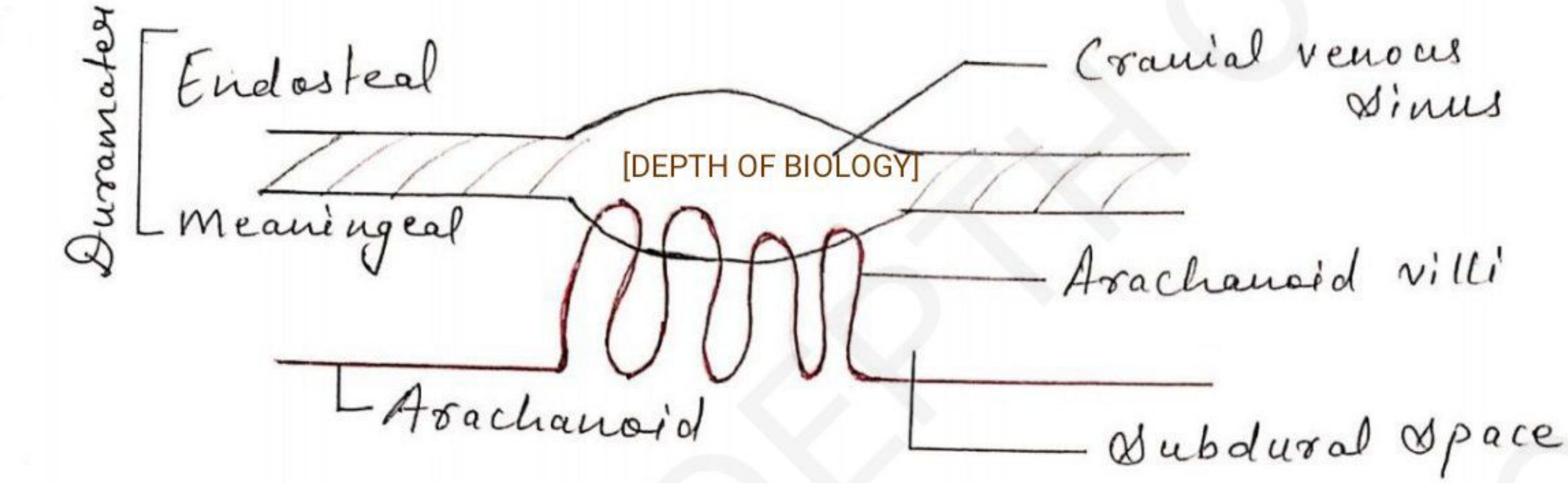
♂ = 1400 gm



① Central sulcus
② Parieto- occipital sulcus
③ Sylvian fissure

Meninges / Menix :— 3 layered / membraned connective tissue.

Outer → Dura mater
Middle → Arachnoid mater
Inner → Pia mater



Duramater :— Outermost thick strong non-elastic layer.

Double layer

Outer endosteal
- Closely attached to innermost surface of cranium.

Inner meningeal
- Related with other meninges of brain
Both vascular.

↳ No space is found between skull & dura mater.

↳ Generally both layers are fused with each other but at some places these are separated from another & form a sinus filled with blood called cranial venous sinus.

Arachnoid :— - Middle thin delicate.
- Found only in mammals.

Non - vascular folded
↓
Arachnoid villi
↓
Reabsorb csf from subarachnoid space & pour into cranial venous sinus.

Piamater :—

↳ Innermost thin transparent highly vascular as dense network of blood capillaries are present.

↳ Firmly adhere to brain.

Leptomeninges → Fusion of Piamater & Arachnoid.

Sub Dural Space :-
Between duramater & arachnoid filled with Serous fluid.

Sub Arachnoid Space :-
Between Arachnoid & Piamater filled with csf.

CSF :- Clear alkaline fluid just like lymph.

- It has protein (Albumin & globulin), glucose, cholestrol, urea, bicarbonates, Sulphates & chlorides of Na, K.

- Protein & cholestral Concentration is lesser than plasma & Cl^- Concentration is higher than Plasma.

↳ For a healthy man in 24 hours, 500 ml of csf is formed & absorbed by arachanoid villi.

At a time total vol. of csf is 150 ml

↳ CSF is present in ventricle of brain subarachnoid space of brain & spinal cord.

formation → Mainly in choroid plexus of lateral ventricle, minor quantity. is formed in III & IV ventricle.

- Collection of csf for any investigation is done by lumbar puncture.
- It is done 13 - 14 region.
- Spinal anaesthesia is given by L.P.

Function of csf :—

↳ Protection of Brain - acts as shock absorbing medium & work as cushion.

→ It provides buyancy to brain.

↳ Excretion of waste products.

↳ Endocrine medium for brain to transport hormones to different area of brain.

Cerebrum

- Largest & most complex part of human brain
- Consists of left & right cerebral hemispheres.
- Connected by Corpus Callosum (tract of nerve fibres)

Cerebral Cortex forms outermost portion of cerebrum & makes up the grey matter.

- The surface of cortex is highly folded forming gyri (upward folds) alternating with Sulci (downward grooves).
- Beneath the grey matter, millions of medullated nerve fibres are present, which give opaque white appearance & comprises of white matter.

- Each hemisphere consists of frontal, Parietal, temporal & occipital lobes.
- Contains Sensory, motor & association areas.
- Association areas are responsible for functions like intersensory associations. memory & communication.

Brain Stem :—

Mid Brain → Top part of brain stem is crucial for regulating eye movements.

Pons → Middle portion of brainstem coordinates facial movements, hearing & balance.

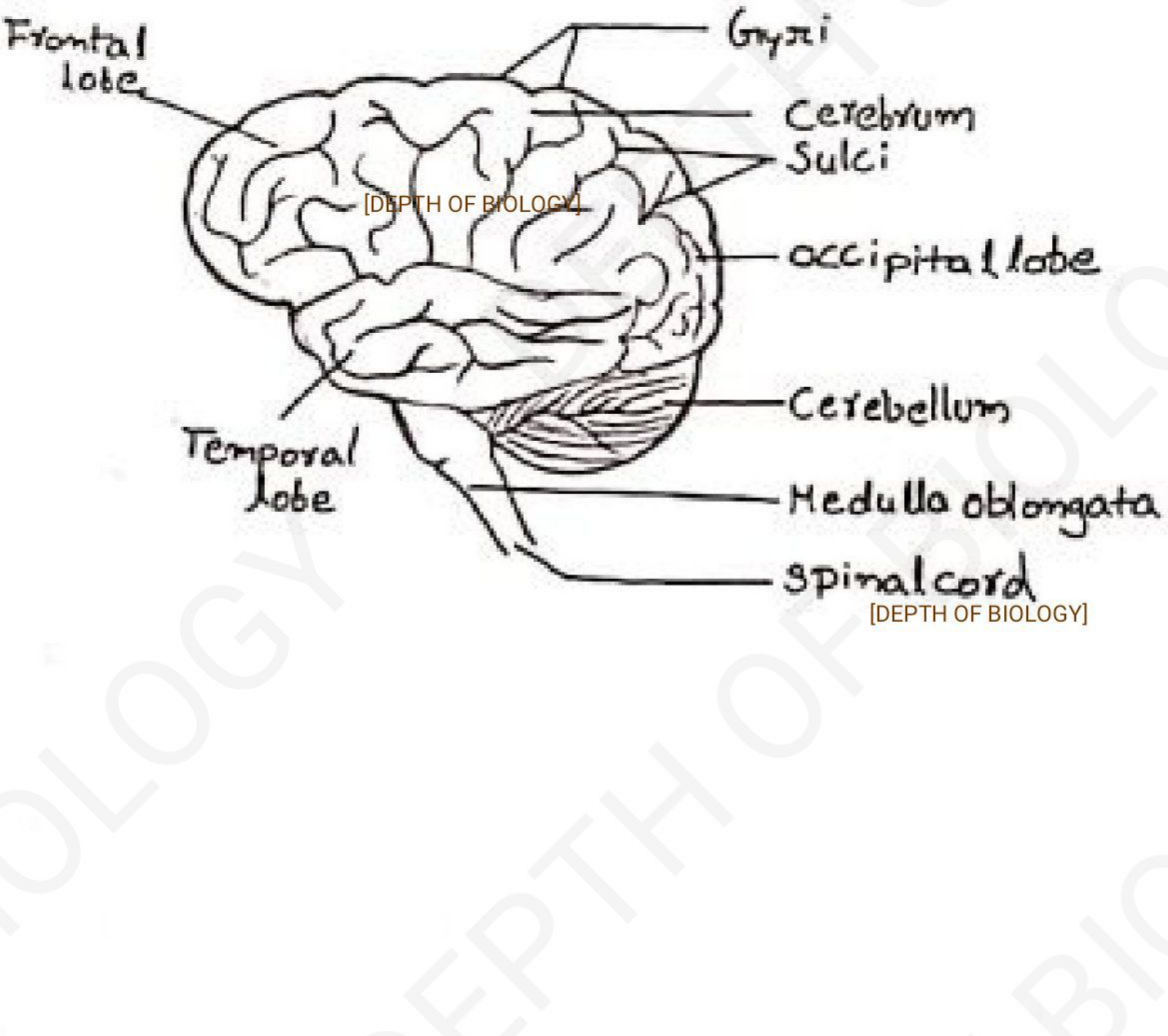
Medulla oblongata → Bottom part of brain stem helps regulate breathing, heart rhythems, BP & swallowing.

↳ Also serves as entry & exit of 10 out of 12 Cranial nerves.

Cerebellum :— Made of 3 lobe
(2 lateral & 1 vermis)

- Both lateral lobes become enlarged & spherical in shape, so lateral lobe of cerebellum also called as Cerebellar hemisphere.

- Due to this reason, regulation & coordination of voluntary muscle is more developed.



Cerebellum

(6)

Hemisphere

Vermis

Anterior lobe.

Primary fissure

Posterior lobe.

Pre fissure

Posterior fissure

Flocculus.

Flocculonodular Lobe

Nodulus.

- An terminal part of vermis, one pair of flocculondular lobes are found.
- These continue in form of
- 3 cerebellar Peduncle are formed ⊗superior attach with mid brain.
- Middle CP with pons
  Inferior CP with Medulla oblongata.

Ventricle of Brain:—

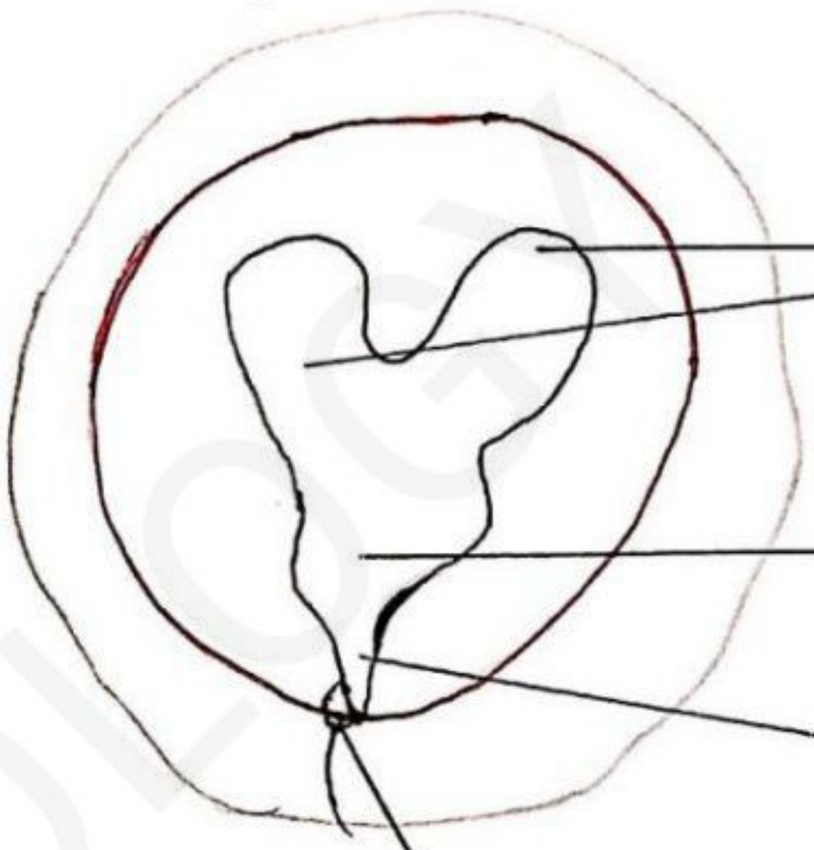
↓

Cavity → filled with CSF

Mid brain

↓

No ventricles



I and II ventricle Cerebral hemisphere

III ventricle Epithalamus

Ater / ⊗ylvius Adegeduct Mid Brain

IV ventricle medulla

Choroid Plexus → Group of neurons
↳ Forms CSF

Anterior
Epithalamus (3rd)

Posterior
Medulla (4th)

Function of CSF :—

↳ Buyancy
↳ Protection from mechanical & shock
↳ Exchange of nutrients & waste.