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## Q NO = 1

Ans:

The major features of the intracranial fossa of the skull are given below.

⇒ Paired bones Frontal and Temporal.

⇒ Unpaired bone are Ethmoid, sphenoid and Occipital.

### Superior view

Cranial cavity is divided into.

- Anterior ~~Cranial~~ Cranial Fossa.
- Middle " "
- Posterior " "

### Anterior Cranial Fossa:

- The Frontal bone turns sharply back to form a large part of the roof of the

orbit . this part of the bone is therefore called orbital plate of the frontal bone . which is the largest contributor to the anterior fossa .

→ it is convex and ridged in roughly H-shape in conformity with the orbital surface of the frontal lobe of the cerebral hemisphere .

→ The frontal lobe of the brain occupies the anterior cranial fossa .

→ The anterior groove for the superior sagittal sinus is traceable down as a crest for the falx cerebri - and behind the lower end of the crest is the foramen cecum which is plugged by the fibrous tissue of the falx .

→ The posterior boundary of the anterior cranial fossa is made by the lesser wing of the sphenoid.

→ Laterally, the lesser wing meets the greater wing and the frontal bone at the pterion. Here the bone is commonly tunneled by the anterior branch of the middle meningeal artery.

→ Medially, lesser wing of the sphenoid is projected back as the anterior clinoid process.

→ In front of the anterior clinoid process, the base of the lesser wing is perforated by the optic canal which transmits the optic nerve and the ophthalmic artery to the orbits. The two optic foramina are

joined by the optic groove.

→ Inserted into a gap between the anterior part of the orbital plates. is the cribriform plate of the ethmoid with its crista galli projecting upwards in the midline.

## Boundaries:

### Anteroslaterally

→ Frontal Sinus.

### Posteriosly:

lesser wing and body of sphenoid.

### Medially:-

cribriform plate, crista galli

### Floor:-

Frontal bone ethmoid.  
lesser wing and body of sphenoid.

Relations:-

Nasal cavity, orbital cavity-

Contents:-

Frontal lobe of cerebral hemisphere.

Landmarks:-

- Frontal crest = Falx cerebri
- Ethmoid = Crista galli.
- Sphenoid = lesser wing, anterior clinoid.
- process = tentorium cerebelli.
  
- The Crista is for the the attachment of the falx and abngside its anterior end is the elongated nasal slit for the anterior olfactory Nerves and vessels.

→ The holes in the cribriform plate transmit olfactory nerve from the upper part of the nose to the brain.

→ At the postero-lateral angle of the cribriform plate, a shallow fossa indents the frontal bone. This lodges the olfactory bulb.

## Middle Cranial Fossa:

The middle cranial Fossa consist of three bones: the sphenoid bone and the two temporal bones. Its boundaries are as follows. Anteriorly and laterally it is bounded by the lesser wings of the sphenoid bone. These are two triangular projections of bone that arise from the sphenoid body.

## Posterior Cranial Fossa:

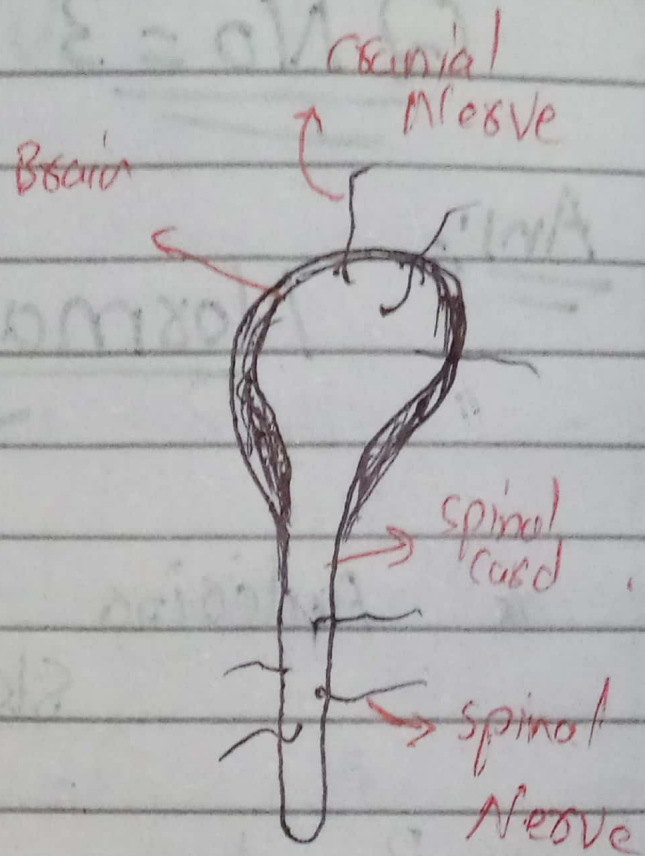
The posterior cranial fossa is part of the cranial cavity, located between the foramen magnum and tentorium cerebelli. It contains the brainstem and cerebellum. This is the most inferior of the fossae. It houses the cerebellum, medulla and pons.



Q No = 2

Ans:-

- ⇒ These are 12-pairs of cranial Nerve.
- ⇒ These are 31-pairs of spinal Nerve.
- ⇒ These are 24 Cranial Nerve.



→ it arise from brain that is why it is called Cranial Nerves.

- 1 = CN I = Olfactory ] → Sen
- 2 = CN II = Optic ] → Sen
- 3 = CN III = Accommodator ] → Mot
- 4 = CN IV = Trochlear ] → Mot
- 5 = CN V = Trigeminal → Mix
- 6 = CN VI = Abducens → Mot
- 7 = CN VII = Facial → Mix
- 8 = CN VIII = Vestibulochlear → Sen
- 9 = CN IX = Glossopharyngeal ] → Mix
- 10 = CN X = Vagus ] → Mix
- 11 = CN XI = Accessory ] → Mot
- 12 = CN XII = Hypoglossal ] → Mot

○○○A Ta Ta Army Force Very Great VAH

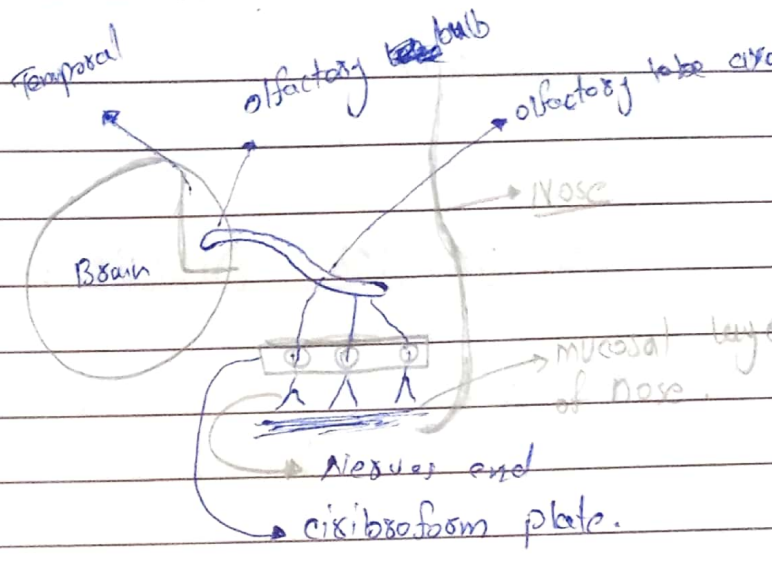
Sensory Nerves: Olfactory, ~~Optic~~ Optic, Vestibulochlear,

Motor Nerves: Accommodator, Trochlear, Abducens, Accessory, Hypoglossal.

Mixed Nerve: Trigeminal, Facial, Glossopharyngeal, Vagus.

# 1 = Olfactory Nerves: (I)

- First cranial Nerves.
- First sensory Nerves.
- its shortest of the cranial Nerves and passes from its receptor in the nasal mucosa to the Fore brain.

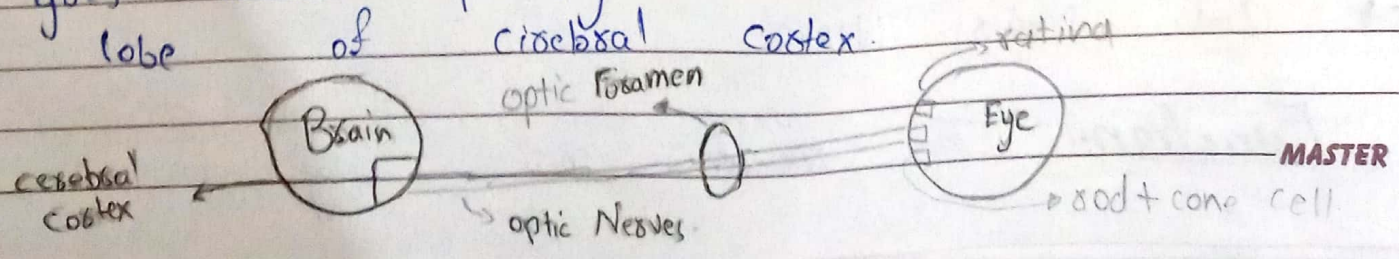


## Function:-

- sense of smell.
- Also gives memory about smell.
- Olfactory Nerve passes from 2<sup>o</sup> cribriform foramen in cribriform plate.
- olfactory bulb → are solid masses in the brain.

# 2 = Cranial Nerve II = Optic Nerves:

- Are sensory Nerve.
- Are goes to cerebral cortex region of Brain.
- In Eye there are two cell Rod + Cones → visual information or signal goes through optic Nerve pass through optic foramen from where it goes toward primary visual area in occipital lobe of cerebral cortex.



## Functions:

vision.

### 3 = Accommodator Nerves:- (III)

⇒ it is first Motor Nerves.

2 - Branches

⇒ Superior: These branch control Two muscle.  
 innervate → (i) Superior Rectus Muscle  
 (ii) Levator palpebrae superioris.

⇒ Inferior:

These control.

- (i) Med Rectus
- (ii) inferior Rectus.
- (iii) Inferior oblique.

### Function:

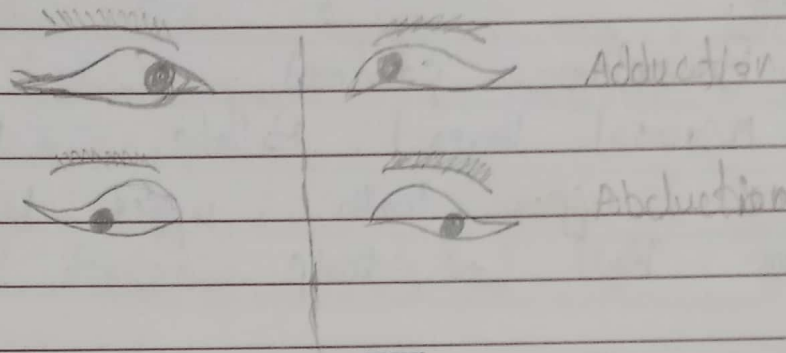
- (i) These Nerve control movement of eyeball and eyelid.
- (ii) Also control Reflex action of pupil.  
 increase light → pupil contract.  
 Decrease light → pupil dilate.

### 4 = Trochlear Nerve: IV

⇒ 2nd Motor Nerve.

Function: The ~~nerve~~ <sup>Nerve</sup> control only one

muscle → Superior oblique muscle control Abduction and Adduction of eye ball.



5 = Trigeminal Nerve: V

- ⇒ Mixed Nerve = and First mixed Nerve.
- ⇒ Largest cranial Nerve.
- ⇒ large Sensory root
- ⇒ Small motor root.

3 - Branches:

- (1) Ophthalmic = it control Muscle of = eye, Fore head.
- (2) Maxillary = it control Muscle of = cheek, Maxilla.
- (3) Mandibular = " " " " = Temporal and Mandible.

(1) Ophthalmic Branch: supply to skin of upper eyelid, eyeball, Lacrimal gland, upper part of Nasal cavity, Side of Nose, Fore head, Half of Scalp.

Trigeminal Neuralgia: These sensation are produced due to the tear of Muscle which

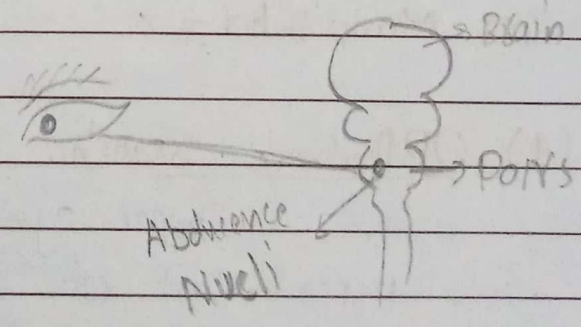
separate Astry from Trigeminal Nerve. The  
 asty are above it which cause  
 periodic sensation and cause periodic  
 pain.

2 = Maxillary Branch: - control.  
 Sensory Axon → Nose (Mucosal layer), Palate, Part of  
 Pharynx, upper teeth, upper lips,  
 anterior half of scalp.

3 = Mandibular Branch: - control.  
 contain sensory axon from ~~anterior~~ anterior 2/3rd  
 of Tongue, cheek Mucosa, lower  
 Teeth, skin over mandibles, mouth,  
 mucosa, Muscle of Mastication (Masseter,  
 Temporal, anterior belly of Digastric,  
 Medial and lateral pterygoid, Mylohyoid)  
 and Tensor Tympani.

6 = Abducens - VI

- ⇒ Motor Nerves.
- ⇒ origin = Abducens Nuclei of Pons.
- ⇒ supply = Lateral Rectus.



Function:  
 Abduction of eyeball.

## 7 = Facial Nerve: VII

→ Mixed Nerve.

→ Motor supply: Face, Scalp, ear, lacrimal gland, Nasal gland, palatine, sublingual, Submandibular,

→ Sensory supply: Anterior 2/3 rd of Tongue.

Branches: have 5 Branches.

1 = Temporal = Temporal Bone,

2 = Zygomatic = cheeks.

3 = Buccal = around buccal cavity.

4 = Mandibular = Lower jaw.

5 = Cervical = Neck.

Q No = 3

Ans:

Nosma Frontalis:

\* Anterior view of the skull.

\* Present an irregular surface with 3 excavations.

1 = one nasal cavity.

2 = two orbital cavities.

Regions of Nosma Frontalis:

There are six region of Nosma Frontalis.

- (i) Frontal region.
- (ii) orbital "
- (iii) Nasal "
- (iv) Zygomatic "
- (v) Maxillary "
- (vi) Mandibular region.



## (i) The Frontal Region:

### Boundaries:

Superior:

Top of the Skull.

Inferior:

→ orbits and root of the Nose.

→ Frontal process of the Maxillae.

Laterally:

Frontal process of zygomatic bone.

### Characteristic Features:

- 1 = Frontal tuberosity or Eminence.
- 2 = Superciliary Arch.
- 3 = Glabella.
- 4 = Nasion.
- 5 = Supraorbital Margin.
- 6 = Supraorbital Notch.

## (ii) The Orbital Region:

### Bones involved:

- 1 = Maxilla

- 2 = Zygomatic Bone .  
 3 = Sphenoid Bone .  
 4 = Frontal " .  
 5 = Palatine " .  
 6 = Ethmoid " .  
 7 = Lacrimal Bone .

## Boundaries:

### Roof :-

- Orbital plate of the Frontal bone .
- Lesser wings of sphenoid .

### Lateral wall :-

- Zygomatic process of the frontal bone .
- Orbital plate of the zygomatic bone .
- Orbital plate of the greater wings of sphenoid .

### Medial wall :-

- Frontal process of Maxilla .
- Lacrimal bone .
- Orbital plate of Ethmoid bone .
- Body of Sphenoid .

Floors:

- orbital plate of the maxilla.
- orbital plate of the zygomatic bone.
- orbital process of the palatine bone.

Base:-

Superiorly: Frontal bone.

Medially: Frontal process of the maxilla.

Laterally: Frontal process of the zygomatic bone.

Inferiorly: → Maxilla medially.  
→ zygomatic bone laterally.

Apex:-

→ Formed by the convergence of the four walls.

(iii) = The Nasal Region:

Bone involved:

- 1 = Nasal Bone.
- 2 = Frontal "
- 3 = Ethmoid "
- 4 = Sphenoid "
- 5 = Vomer
- 6 = Maxilla.
- 7 = Palatine Bone.
- 8 = Lacrimal Bone.
- 9 = Inferior nasal concha.

Boundaries:

Anterior:

→ Pyxisform aperture.

Posterior:

→ the posterior Pharynx thru Nares.

Superior wall:

1 = Anterior:

→ Nasal Bone.

→ Nasal process of the frontal bone.

## 2 = Middle:

→ cribriform plate of ethmoid Bone.



## 3 = Posterior:

→ Body of the sphenoid.

## Median wall:

→ Perpendicular plate of ethmoid.

→ Vomer.

## IV = The zygomatic Region:

→ Form the prominence of a cheek, contributes to the lateral orbital wall and floor parts of the wall of temporal and infratemporal fossa and completes the zygomatic arch.

→ Roughly quadrangular with anteromedial and frontal process.

→ it can be described as having three surface and five borders and two process.

### Lateral view:

#### Process:

- 1 = Temporal process.
- 2 = Frontal "
- 3 = Maxillary "

#### Surfaces:

- 1 = Anterolateral surface.
- 2 = Posterosomedial "
- 3 = orbital "

#### Borders:

- 1 = orbital
- 2 = ~~orb~~ Maxillary.
- 3 = Temporal
- 4 = Posteroinferior.
- 5 = Posterosomedial.

## V = Maxillary Region:

### Characteristic Feature:

- 1 = Anterior nasal spine.
- 2 = Infraorbital foramen.
- 3 = Canine fossa.
- 4 = Incisive fossa.
- 5 = Canine eminence.
- 6 = Jugum <sup>os</sup> zygomatico-alveolar arch.
- 7 = Alveolar process of the maxilla.

## (vi) = The mandibular Region.

- involves the mandible which is the strongest bone of the face.
- Houses the lower teeth.
- Develops in 2 symmetrical halves which fuse and ossify in the first year of life.

## Characteristic Features:

- 1 = Symphysis menti.
- 2 = Mental protuberance.
- 3 = Alveolar processes.
- 4 = Mental foramen.

## Norma occipitalis:

- Most of the occipitals bone can be seen.
- The lambda is where the lambdoid and sagittal sutures intersect.
- The posterior pole of the skull which is the part of that wall hit the ground first when falling backwards is located below the lambda.

## Sutural bones:-

- Accessory bones commonly located in the lambdoid suture.



→ Sutural bone are sometimes seen along other border of the parietal bone

## External occipital protuberance:

→ A projection located below the lambda.

→ Can be felt by running a finger up to the midline groove at the back of the neck.

## The Inion:

→ is the summit of the External occipital protuberance.

→ The inion lies opposite the interval between the occipital poles of the cerebrum.

→

Q No = 4

Ans:

Hip Muscles:

Gluteal Muscles: -

Gluteus maximus, Gluteus medius, gluteus minimus, Tensor fasciae latae.

Inner Hip Muscles: -

iliacus, psoas major, psoas minor, obturator externus, obturator internus, Superior gemellus, inferior gemellus, Piriformis, quadratus femoris muscles.

Knee Muscles:

Quadriceps Femoris: -

Large group of four muscles on the front of the thigh that help to extend the leg. All four muscles

Coverage to form the quadriceps tendon, which attaches to the tibia, via the patella and patellar ligament.

- (i) Vastus Lateralis: - Exist on the lateral side of the anterior thigh.
- (ii) Vastus Intermedius: - Exist on the anterior and central part of the thigh. It lies underneath the Rectus femoris.
- (iii) Vastus Medialis: - Exist on the medial side of the anterior thigh. Help to stabilize the patella.

(iv) Rectus Femoris: - on the anterior. It is also a weak flexor of the hip.

Sartorius: - A slender and long muscle that comes from the anterior pelvis and

attaches to the medial  
Tibia to help ~~from~~ form  
the pes anserinus.  
it help with the  
multiple motions of  
the hip and knee.

### Gracilis:-

Another slender and  
long muscle that comes  
from the pelvis and  
attaches to the medial  
Tibia to help form  
the pes anserinus.  
it a weak muscle and  
help in multiple motion  
of hip and knee.

Hamstrings:- located on the  
posterior thigh. help  
in bend the knee.  
include 3- muscles.

- (i) Semimembranosus.
- (ii) Semitendinosus.
- (iii) Biceps Femoris.

## Gastrocnemius :-

The main bulk of your calf muscle. These are two heads. One along the posterior lateral leg and one along the medial leg. They attach to the heel bone through Achilles tendon.

This muscle plantar flexes the ankle allowing you to stand on your tip toes. It also help to bend the knee.

Q No = 5

Ans:

Femoral Triangle:

→ Triangular depression occupying the upper  $\frac{1}{3}$  of the front of the thigh.

Base:-

→ Inguinal ligament.

Medially:-

→ Medial border of adductor longus muscle.

Laterally:-

→ Medial border of Sartorius muscle.

Apex:-

Meeting between medial and lateral boundaries.

Roofs:-

→ skin, fasciae, and the content.

Floors:-

→ Adductor longus, pectineus, psoas major, and iliacus.

Contents:-

→ Femoral artery, vein, Nerve sheath, and femoral branch of genito-femoral Nerve  
→ Lateral cutaneous Nerve of thigh and lymphatics.

Applied Anatomy:-

→ Femoral ring represents a weak point through which the intestine may pass it down to the thigh.

→ it is more common in females due to wider femoral ring.

## Femoral Sheath:

### Formation:-

- Anterior abdominal wall is lined by fascia. transverse
- Lower part of posterior abdominal wall is covered by fascia iliaca.
- Both fasciae meet at inguinal ligament.
- External iliac vessels pass behind inguinal ligament b/w the 2 fasciae & crossing with them a funnel shaped sheath.
- Femoral nerve interc the thigh behind fascia iliaca, so the femoral nerve remains outside the femoral sheath.



## Compartments:

### Lateral Compartment:-

contain femoral artery + femoral branch of genitofemoral Nerve.

### Middle Compartment:-

contain femoral vein.

### Medial Compartment:-

→ it is the femoral canal.  
 it is potential space containing loose connective tissue. it contains deflexed lymphatics from deep inguinal lymph nodes, and also the lymph node of Cloquet which drains the glans penis.

### Femoral Canal:

→ it is the medial compartment of the femoral sheath.

- it is about 1.5 cm long.
- it is connected superiorly with the abdomen at the femoral ring which is closed by connective tissue called femoral septum.
- Anteriorly the canal is related to saphenous opening.
- it serves as potential space allowing distention of femoral vein during exercise.