



NEET - MDS

MASTERS OF DENTAL SURGERY

BY NBE

NATIONAL ELIGIBILITY CUM
ENTRANCE TEST

Volume - 1

General Anatomy & General
Human Physiology



CONTENT

GENERAL ANATOMY INCLUDING EMBRYOLOGY AND HISTOLOGY

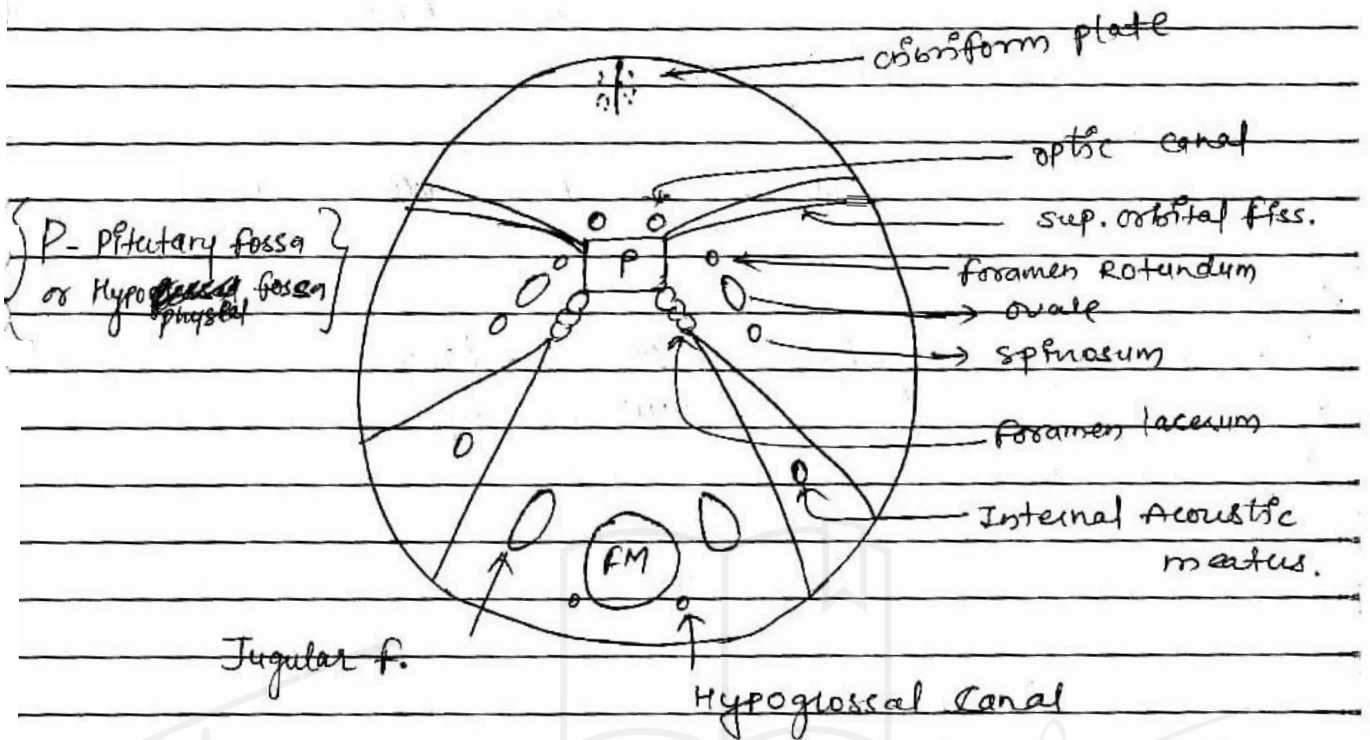
| | |
|------------------------------|----|
| 1. Foramen of Skull | 1 |
| 2. Compound Nucleus | 10 |
| 3. Cavernous Sinus | 14 |
| 4. FACE | 15 |
| 5. Arteries of Faces | 17 |
| 6. Thyroid Gland | 19 |
| 7. General Embryology | 51 |
| 8. General Anatomy | 59 |
| 9. Histology | 63 |

GENERAL HUMAN PHYSIOLOGY & BIOCHEMISTRY

| | |
|-------------------------------------|-----|
| 1. Nerve – Muscle Physiology | 72 |
| 2. Types of Channels | 88 |
| 3. Arterial Pulse | 100 |
| 4. CVS Regulation | 102 |
| 5. Respiratory System | 109 |

| | |
|---------------------------------------|-----|
| 6. General Physiology | 126 |
| 7. CNS | 134 |
| 8. Renal Physiology | 156 |
| 9. Endocrines | 165 |
| 10. Male Reproductive System | 174 |
| 11. Female Reproductive System | 175 |
| 12. GUT Hormone | 177 |
| 13. Hypoxia | 186 |
| 14. Eye | 188 |
| 15. Taste | 188 |

FORAMENS OF SKULL :-



Cribriform plate :- Cranial Nerve I (Olfactory nerve)
 optic canal \rightarrow II (optic nerve, ophthalmic artery)
 Sup. orbital fissure :- III, IV & VI (motor nerves)
 (V₁ & V₂)
 V₁ (sensory)
 \rightarrow superior & inferior ophthalmic vein.

* foramen rotundum :- V₂ (maxillary nerve)

* F. ovale :- V₃ - M - mandibular nerve
 A - accessory meningeal artery.
 L - lesser petrosal nerve
 E - Emissary vein.

F. Spinosum :- MEN

M - Middle meningeal Artery
 E - Emissary vein
 N - Nervous spinosum (Recurrent meningeal branch of mandib. Nerve)

f. lacerum :- (Through upper part only) :-

- Internal Carotid artery
- Greater petrosal nerve

Through the f. lacerum (through cartilage) :-

- ⇒ Meningeal branch of ascending pharyngeal artery
- ⇒ Emissary vein.

Internal Acoustic meatus :- VII → Labyrinthine Artery.
VIII → (vestibulocochlear)

Jugular foramen :-

Ant. part :- Inferior petrosal sinus

Middle part :- IX, X, XI

Post. part :- sigmoid sinus.

⇒ Hypoglossal Canal :- XII N.

⇒ f. Magnum :- lower end of medulla

- spinal accessory nerve (XI)
- Vertebral artery, spinal Artery.
- vertebral venous plexus.

Collection of
Nerve cell body

Collection
of Axon

outside
CNS



Ganglion

Nerve

inside
CNS



Nucleus

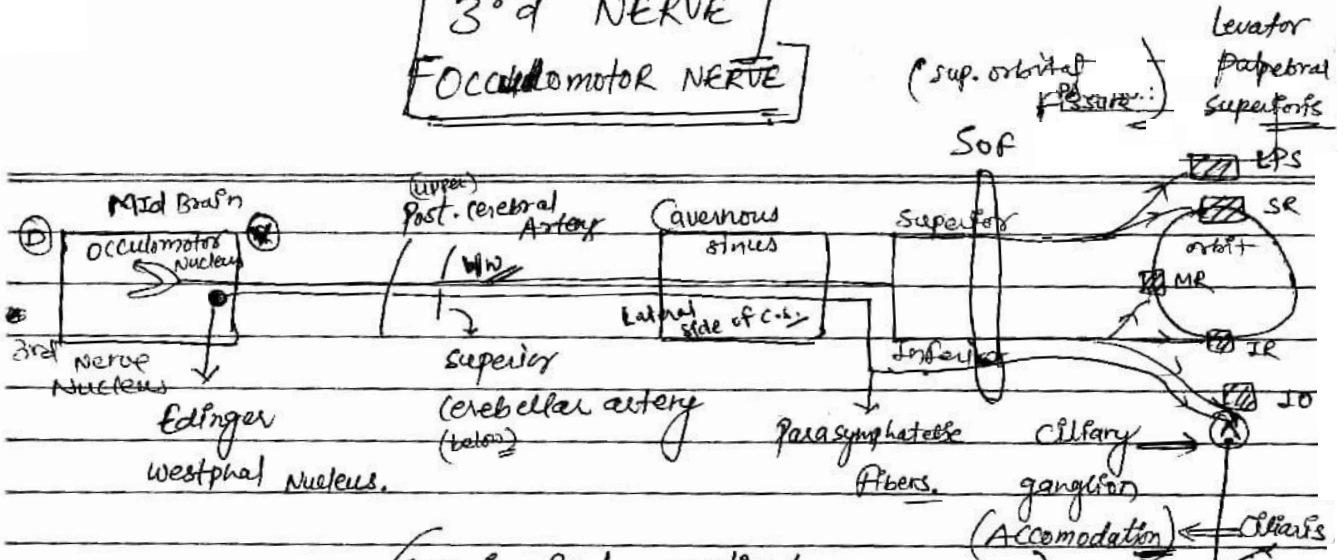
Tract

Brain stem &

nerve

| | | |
|-------------------|---|------|
| Mid Brain | • | III |
| | • | IV |
| Pons | • | V |
| | • | VI |
| | • | VII |
| medulla oblongata | • | VIII |
| | • | IX |
| | • | X |
| | • | XI |
| | • | XII |

3rd NERVE OCULOMOTOR NERVE



ANS:-

* (Superior Rectus supplies by contralateral side of nerve)

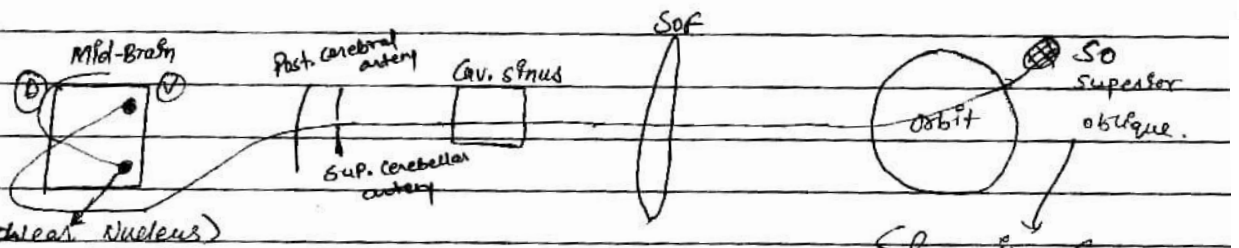
Sympathetic (Thoraco lumbar) (T₁-L₂) (light reflex)

Para sympathetic (Cranio sacral) (3, 7, 9, 10) (S₂-S₄)

Sympathetic → Dilatation of pupil (fear)

Parasympathetic → Constriction of pupil

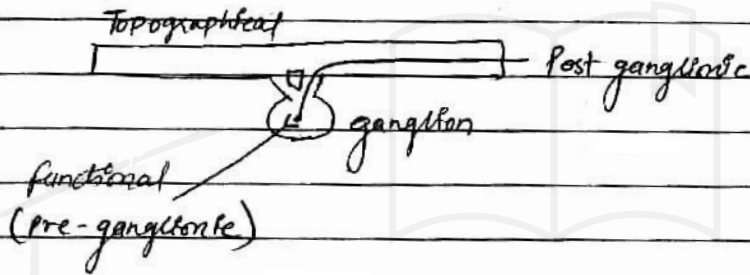
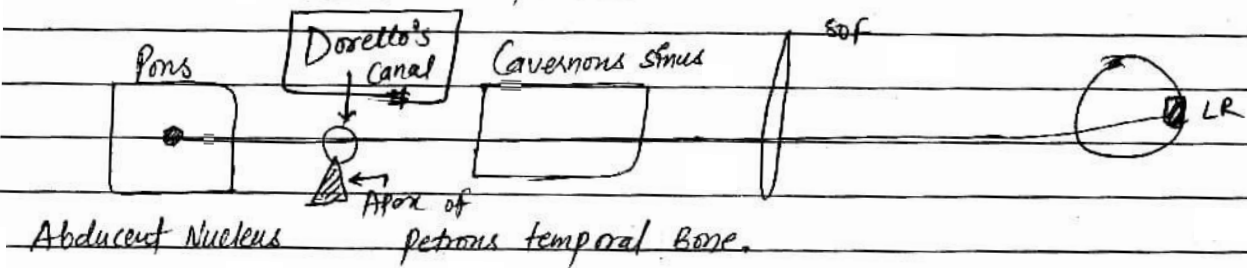
4th Nerve / Trochlear Nerve



- ① → only nerve to exit from Dorsal aspect.
 - ② Thinnest Cranial Nerve. → 4th C.N.
 - ③ Thickest Cranial Nerve → 5th C.N.
 - ④ decussates in brain stem (Right side fibre to left side & vice versa)
 - ⑤ longest Intra-cranial Course. - 4th C.N.
 - ⑥ longest Extra-cranial Course - 7th C.N.
- responsible for downward & lateral movement.

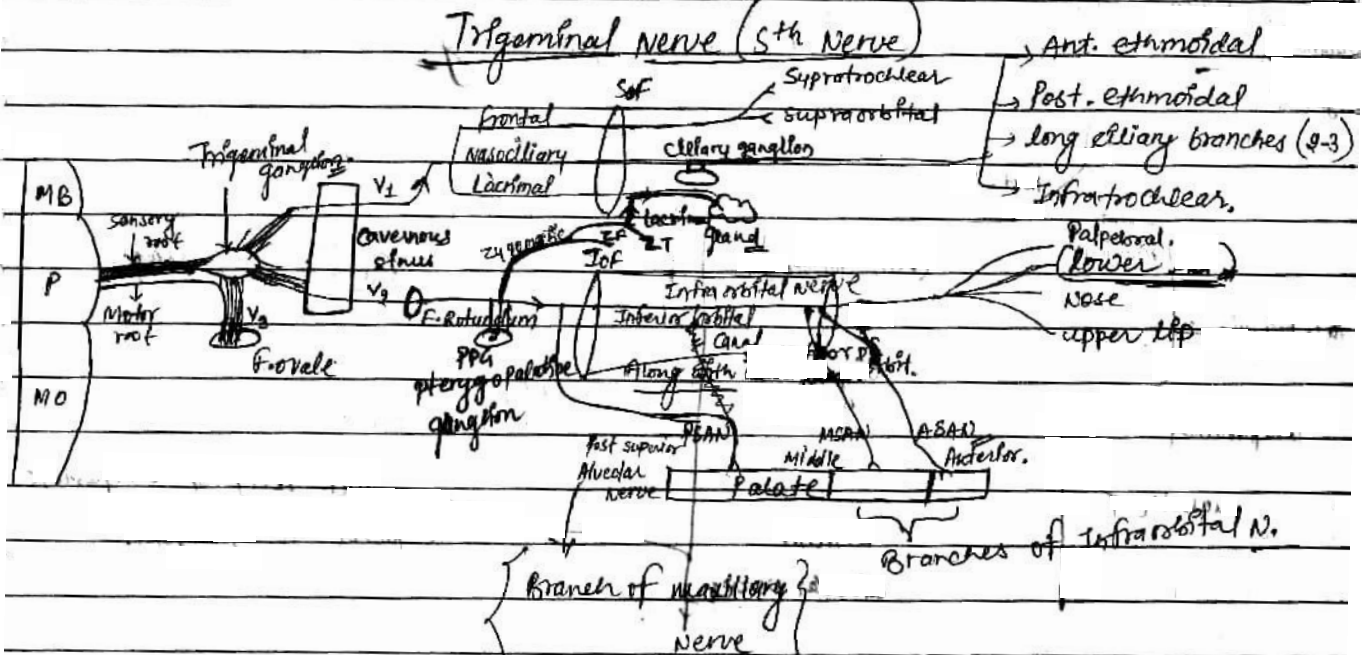
⇒ longest intradural course ⇒ 6th Nerve
over all
⇒ longest C.N. ⇒ 10th C.N.

6th Nerve / Abducens Nerve

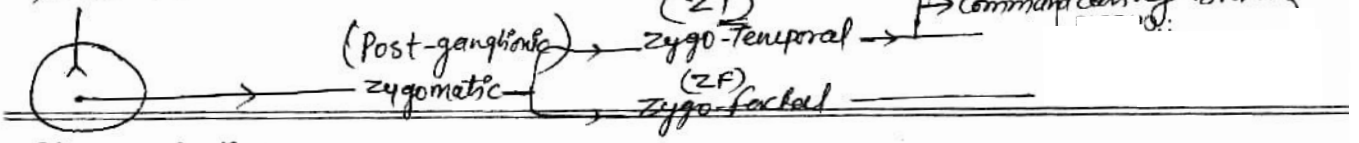


- * Topographical nerve holds the ganglion.
- * functional nerve brings pre-ganglionic fibre.
- * Post-ganglionic fibres are distributed by branches of Topographical Nerve.
- * Branches of topographical are topographical for parasym. ganglia.

Trigeminal nerve (5th Nerve)

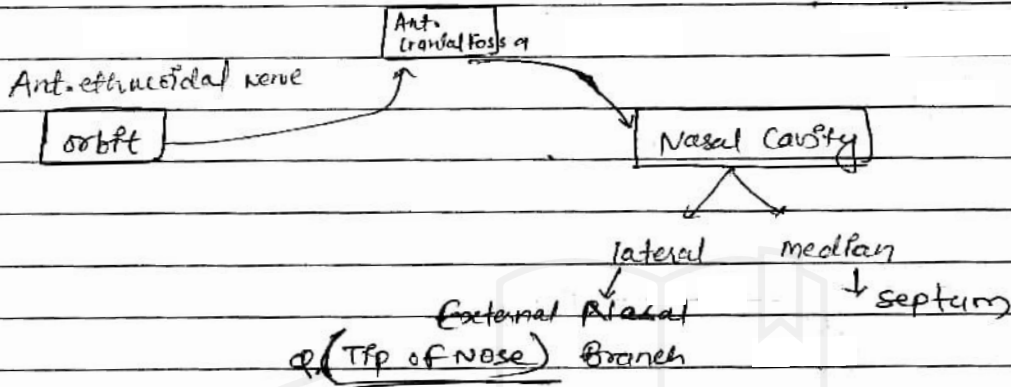


~~Branch~~ (V1)
Greater petrosal nerve

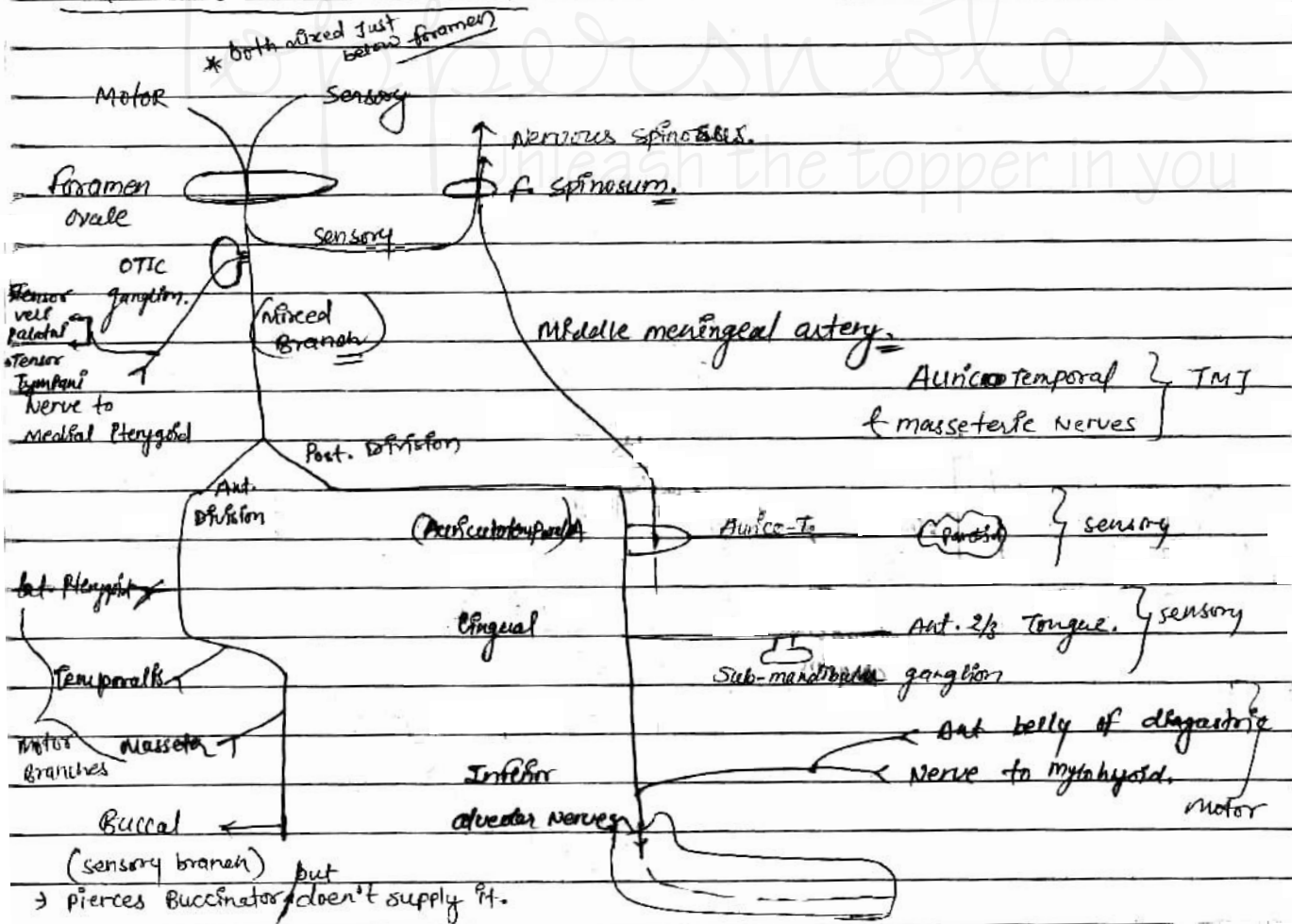


Pterygopalatine

ganglion / sphenopalatine / ganglion of Hay fever / MECKEL'S ganglion.



MANDIBULAR NERVE f

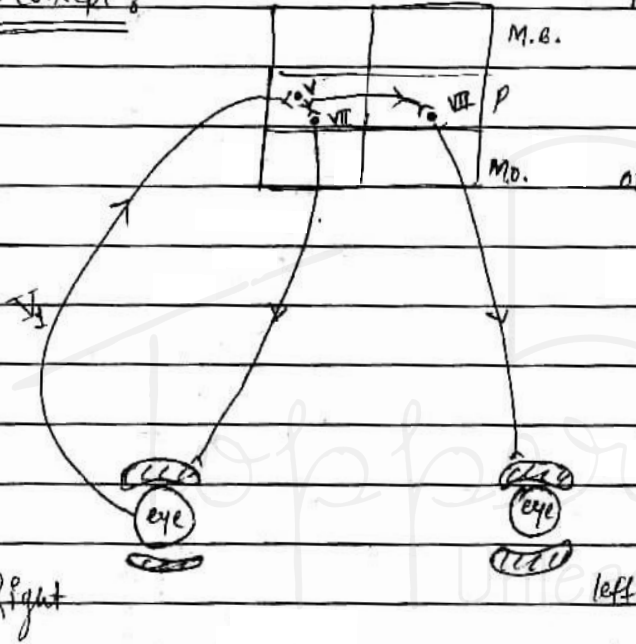


$V_3 \rightarrow$ develop from 1st arch.

| * Develop from 1st arch | Mnemonic | |
|-------------------------|------------|---|
| | My | \rightarrow Mylohyoid |
| | MAST | \rightarrow mastication muscles |
| | Ant digest | \rightarrow Ant. digastric |
| | tensor | \rightarrow tensor veli palatini / tensor tympani |

Concept

Corneal reflex

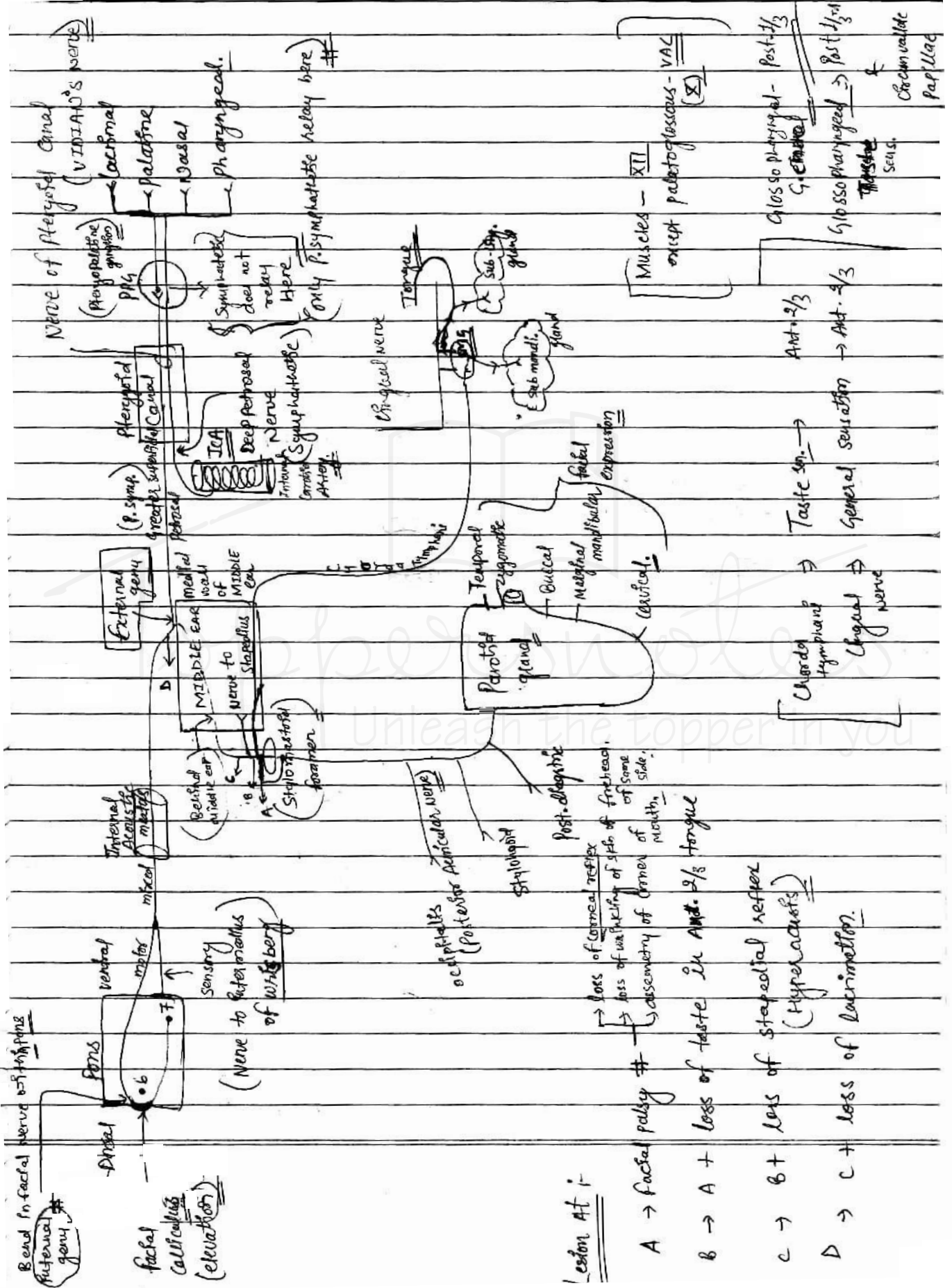


Q. which nerve lesion could produce the condition where stimulation of right cornea results in blinking of left eye but not the right eye?
 (a) left trigeminal (b) left facial
 (c) right trigeminal (d) right facial

(D) Ans

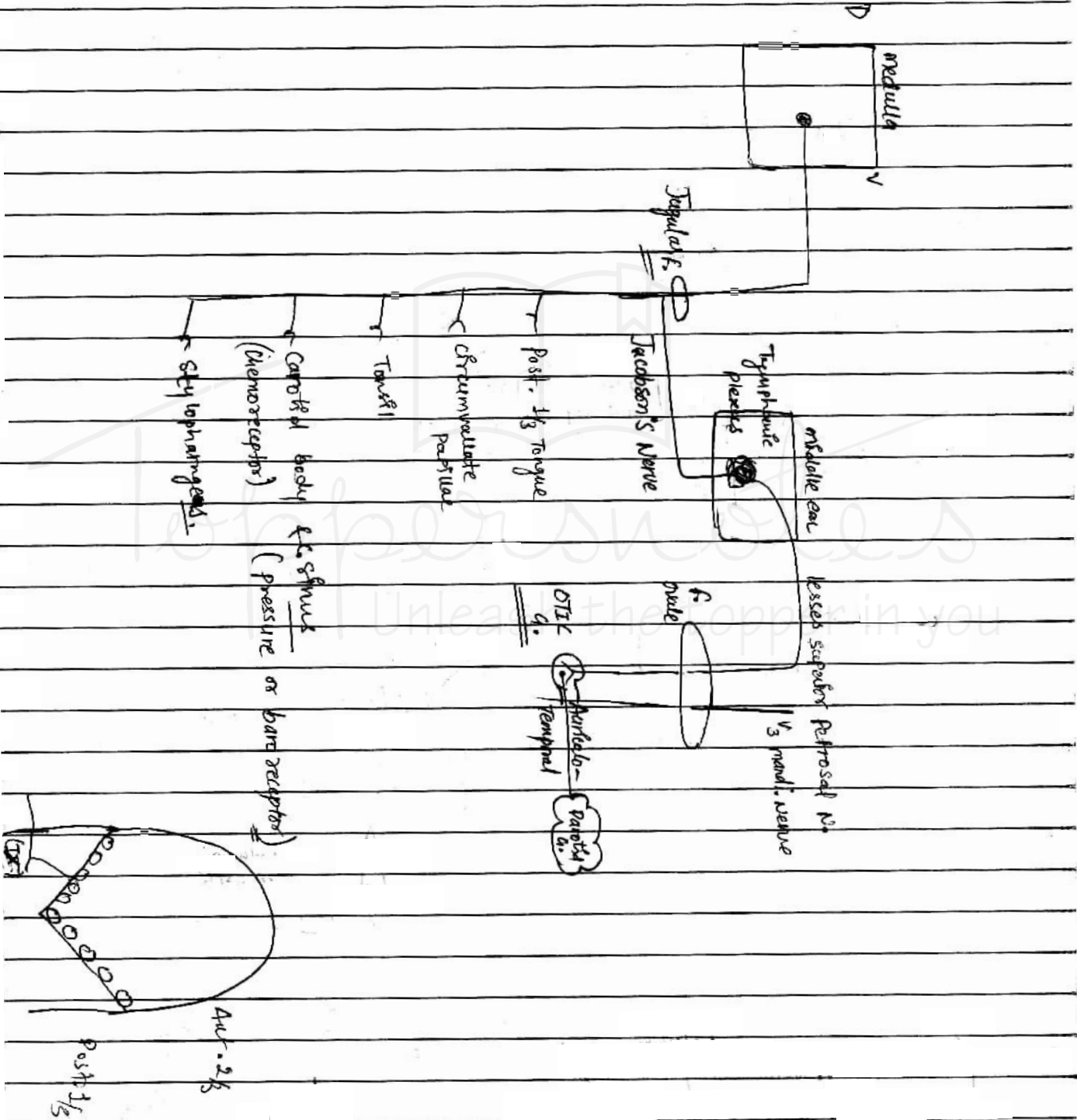
Afferent fibers :- V_1
 efferent fibers :- VII

FACIAL NERVE / VII^m



Schirmer's test - (lacrimation) → greater petrosal nerve.

Glossopharyngeal nerve (9th N.)



Compound Nucleus :-

① Nucleus of tractus solitarius

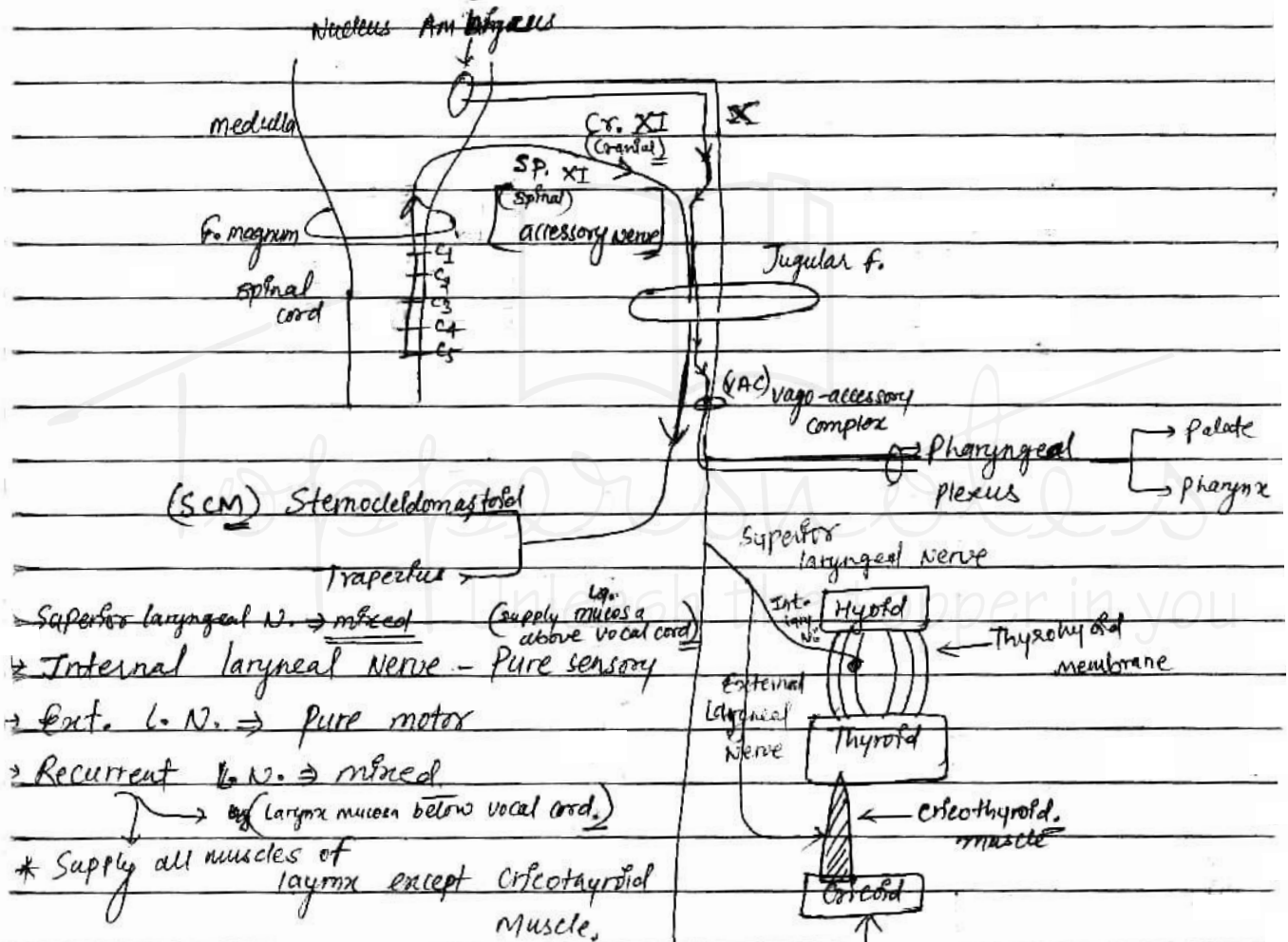
(NTS)

Components (9, 10, 7)

② Nucleus Ambiguus

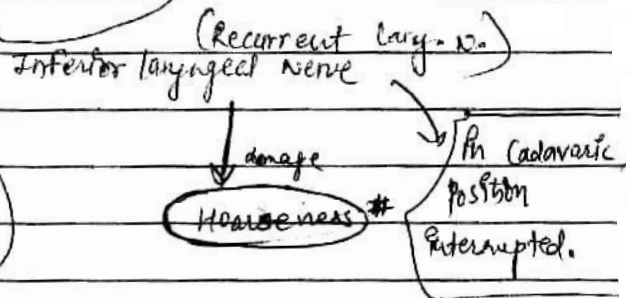
(9, 10, 11)

X & XIth NERVE :-



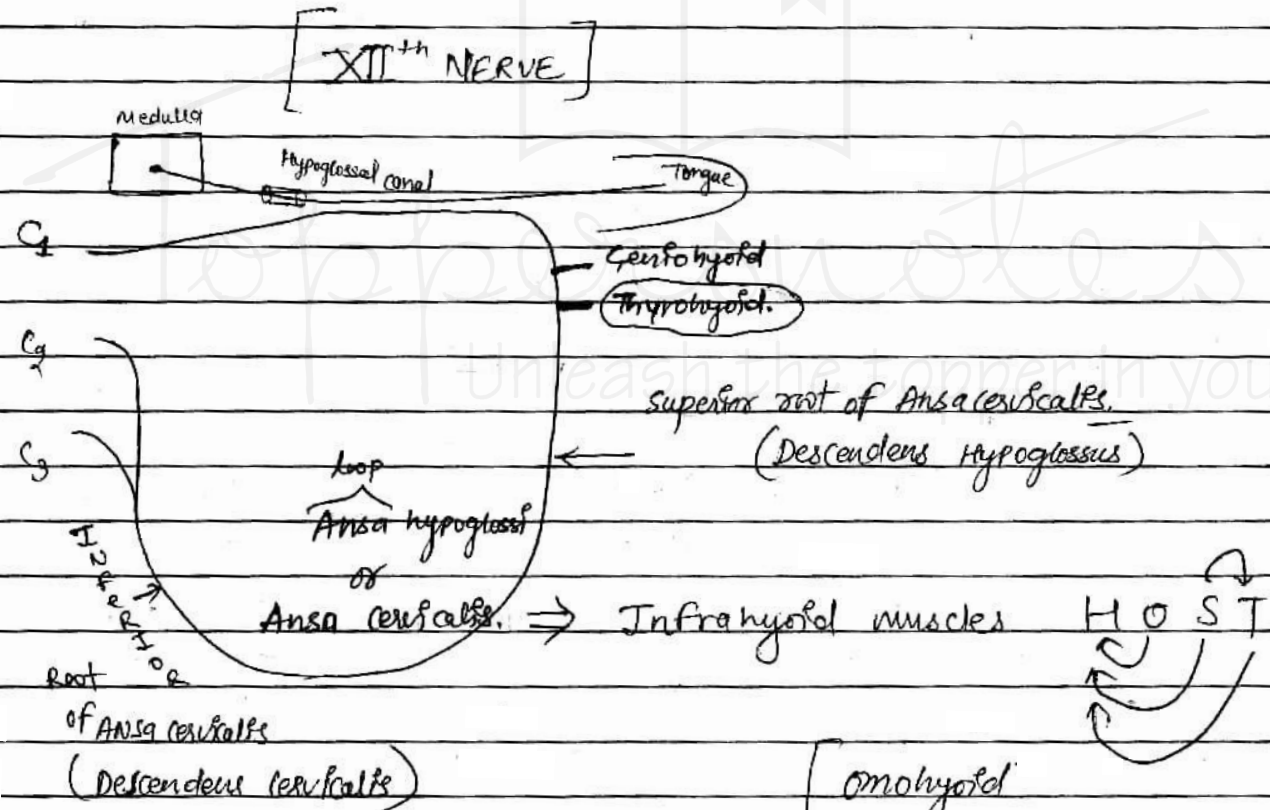
- Superior laryngeal N. → mixed (supply muscles above vocal cord)
- Internal laryngeal nerve - Pure sensory
- Ext. l. N. → pure motor
- Recurrent l. N. → mixed (larynx muscles below vocal cord)
- * Supply all muscles of larynx except cricothyroid muscle.

- (Internal larynx nerve - cough reflex) Protective
- External larynx nerve - weakness of phonation (being loss of tightening effect of the cricothyroid on vocal cords)

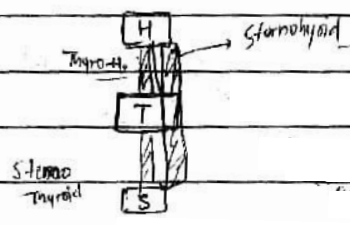


Parasympathetic ganglion

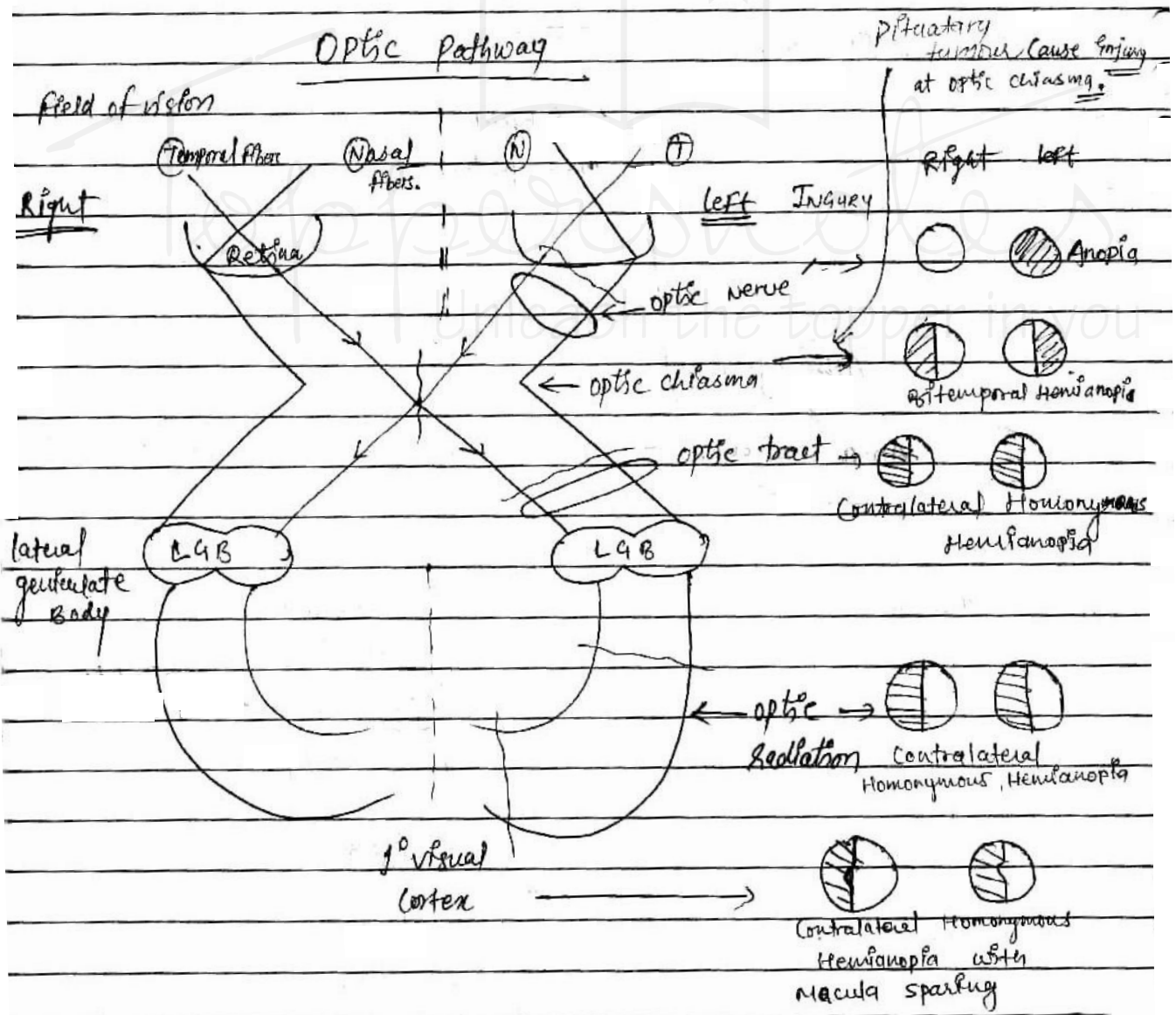
| Nucleus | functional nerve | Ganglion | topographical | Target. |
|---------------------------|---------------------------------|-------------|---------------------------|-----------------------------------|
| Edinger-Westphal | Nerve to Inferior oblique (III) | Ciliary PPG | (VI) Nasociliary | Ciliary, sphincter pupillae |
| Lacrimal N. | Greater petrosal N. (VII) | PPG | V ₂ | Lacrimal (nasal, palate, pharynx) |
| Inf. Saliv. N. | Lesser petrosal N. (IX) | OTIC | V ₃ | parotid |
| Superior Salivary nucleus | Chorda tympani (VII) | SMG | Lingual (V ₃) | SMG, SLG |



omohyoid
 Sternohyoid
 Thyrohyoid → Supplied by C₁ fibers
 Sternothyroid



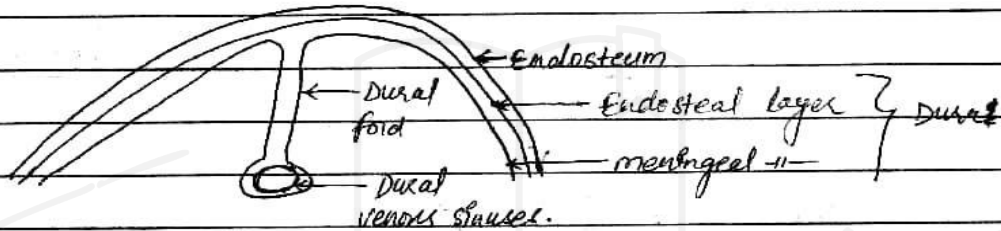
| All Muscles | Supplied by | Except |
|-------------|------------------------------|---|
| Palate | VAC (Vago-accessory complex) | Tensor vel palatini (V ₃) |
| Pharynx | VAC | Stylopharyngeus (IX) |
| Larynx | RLN (Recurrent L.N.) | Cricothyroid (External L.N.) |
| Tongue | XII (Hypoglossal nerve) | # (Extrinsic muscle)* Palato-glossus (VAC) |
| Infrahyoid | Ansa cervicalis | Thyrohyoid (C ₁ fiber via XII Nerve) |



* Post. cerebral artery infarct (PCA) } Macula spare becoz derible Blood supply }

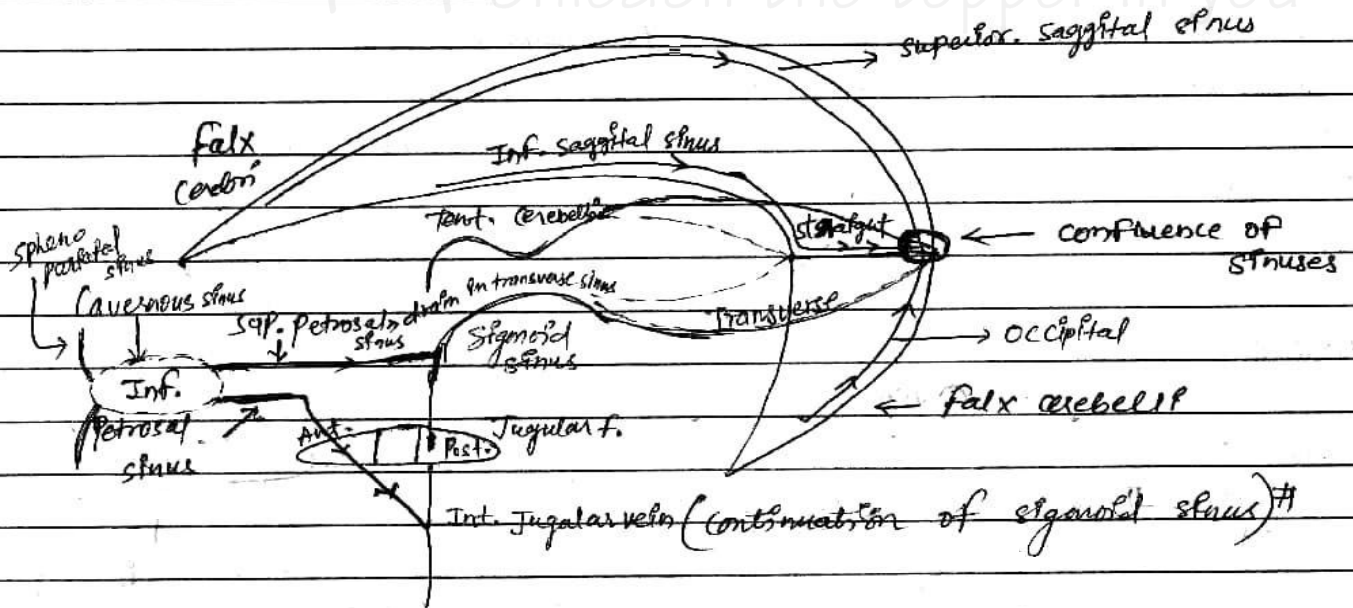
Macula → PCA + MCA }
 Post. cerebral artery middle cerebral artery

Dural venous sinuses &



Dural folds ⇒ Falx cerebri

- Falx cerebelli
- Tentorium cerebelli
- Diaphragma sellae.

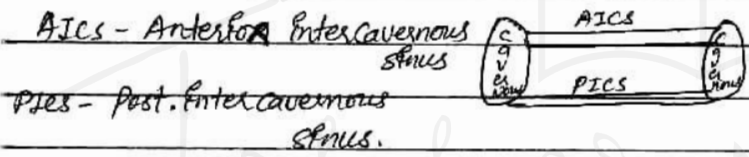
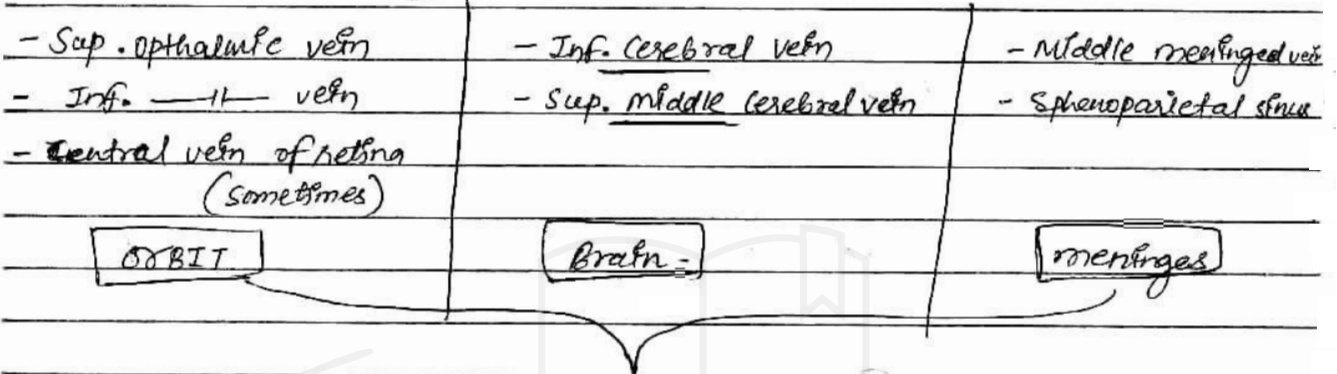


Thrombosis of Cavernous sinus:- (a) venous symptoms :- Severe pain in eye & forehead
 → 3rd, 4th & 6th → paralysis of muscles (VI)

(b) venous symptoms → oedema of eyelids
 * Communication b/w cavernous sinus & ICA ⇒ Pulsating exophthalmos.
 (due to head injury)

CAVERNOUS SINUS

Tributaries or Incoming channels :-

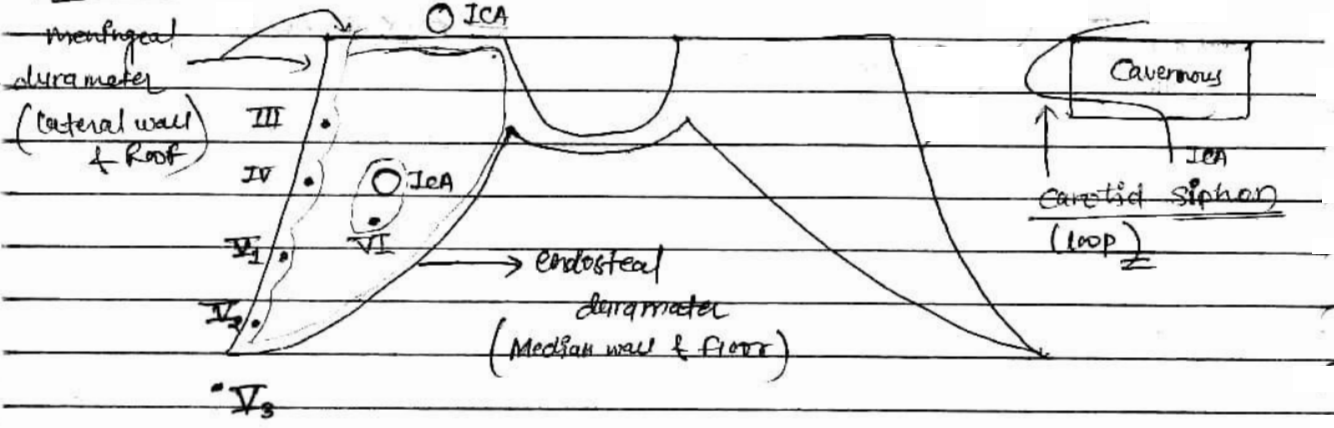


Communications / Drainage :-

- 1.) Ant. & Post. Intercavernous sinus.
- 2.) Inf. Petrosal sinus → Int. Jugular vein
- 3.) Sup. ——— ——— → Transverse sinus
- 4.) Emissary vein → Pterygoid venous plexus.
- 5.) Dangerous connection → facial vein.

↳ (superior ophthalmic vein & emissary vein of Pterygoid Plexus)

Relations :-



Grey's +1 $\rightarrow V_2$ is not along the lat. wall of cavernous sinus,
 ✓ Harrison $\rightarrow V_2$ is along the lat. wall of C.S.

Dura Nerve Supply / Blood supply

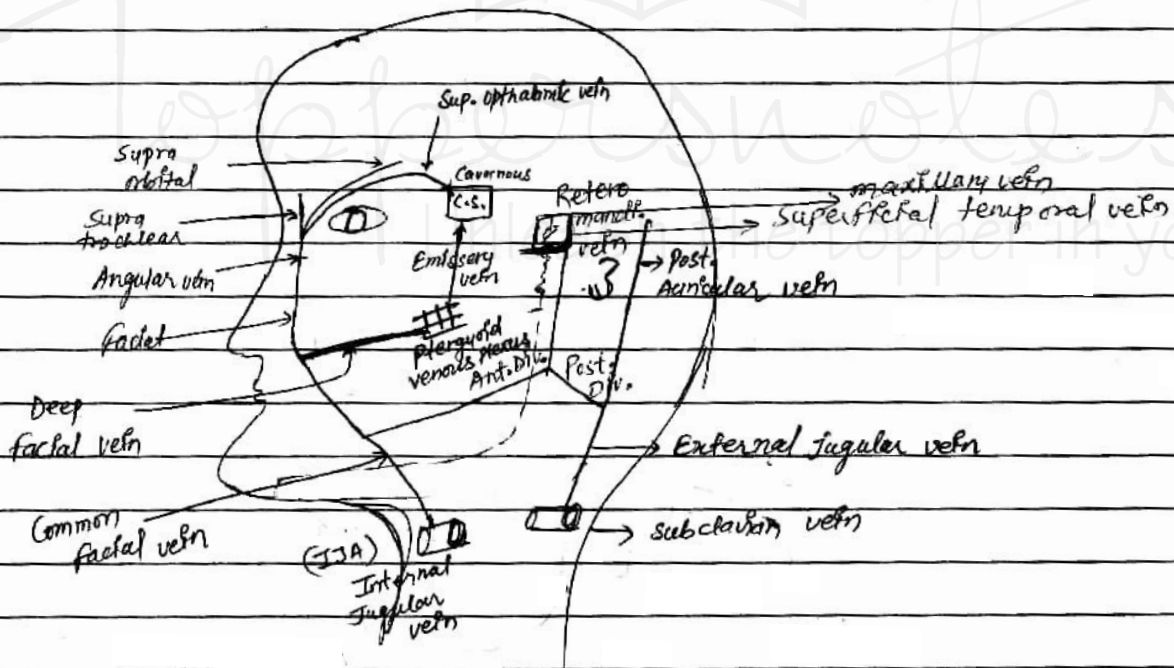
Vault or supratentorial space \rightarrow middle meningeal artery.

Ant. Cranial fossa \rightarrow Ant. & Post. Ethmoidal Nerve (V_1)
 \hookrightarrow Antepost. ethmoidal and ophthalmic arteries.

middle cranial fossa \rightarrow meningeal Branch of $V_3 + V_3$.
 \hookrightarrow middle, accessory meningeal and ICA / and meningeal branch of ascending pharyngeal artery

Post. Cranial fossa \rightarrow X, XII, C_1, C_2, C_3
 \hookrightarrow meningeal branch of vertebral, occipital, ascending pharyngeal artery.

FACE



Dangerous area of face \rightarrow lower part of nose + upper lip.
 Because: Superficial infection here might lead to septic embolus reaching cavernous sinus.