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Cranial nerves are pairs of nerves.

Your cranial nerves are pairs of nerves that connect your brain to different parts of your head, neck, and trunk.

There are 12 of them, each named for their function or structure. Each nerve also has a corresponding Roman numeral between I and XII.

① olfactory nerve.

(2) optic nerve.

(3) oculomotor nerve.

(4) Trochlear nerve.

(5) Trigeminal nerve.

(6) Abducens' nerve.

(7) Facial nerve.

(8) Vestibulocochlear nerve.

(9) Glossopharyngeal nerve.

(10) vagus nerve.

(11) Accessory nerve.

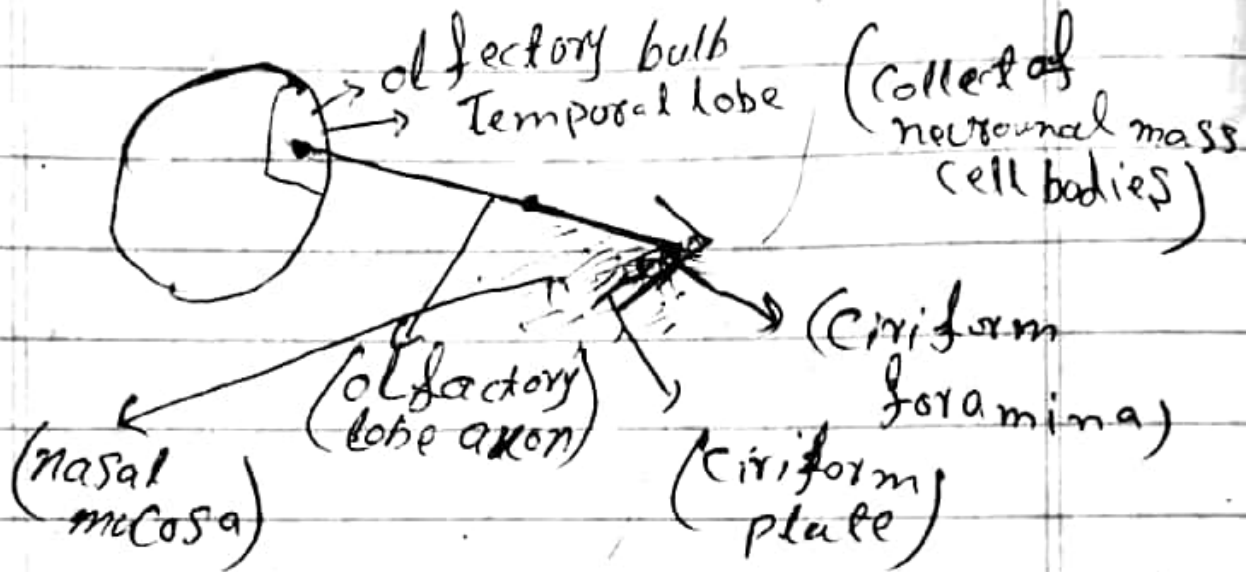
(12) Hypoglossal nerve.

## Q) olfactory nerve :-

Short notes olfactory nerve.

it is a sensory nerve

function  $\Rightarrow$  Sense of smell



### Explain olfactory nerve:-

The olfactory nerve transmits

sensory information to your

brain regarding smells that

you encounter.

When you inhale aromatic

molecules, they dissolve in

a moist lining at the roof

of your nasal cavity, called

The olfactory.

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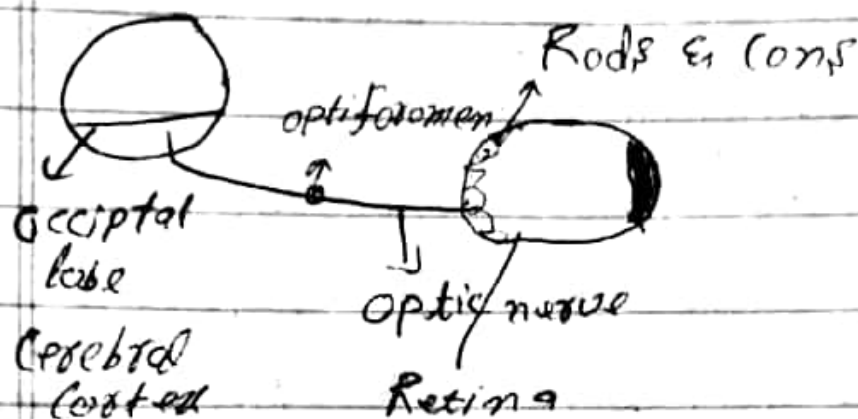
epithelium. this stimulates receptors that generate nerve impulses that move to your olfactory bulb. your olfactory bulb is an oval-shaped structure that contains specialized group of nerve cells.

From the olfactory bulb, nerves pass into your olfactory tract, which is located below the frontal lobe of your brain. nerve signals are then sent to areas of your brain concerned with memory and recognition of smells.

## ② Optic nerve

Sensory nerve.

Function  $\Rightarrow$  Sense vision.



Explan:-

The optic nerve is the sensory as that involves vision.

When light enters your eye, it comes into contact with

special receptors in your retina called rods and cones. Rods are found in large number and are highly sensitive to light. They are more specialized for black and white or night vision.

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Cones are present in smaller numbers. they have a lower light sensitivity than rods and are more involved with color vision.

The information received by your rods and cones is transmitted from your retina to your optic nerve. once inside your skull both of your optic nerve meet to form something called the optic chiasma. At the optic chiasm, nerve fibers from two separate optic tract. through each optic tract, the nerve impulses eventually reach your visual cortex which then process the information. your visual cortex located in back part of your brain.

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③ Oculomotor nerve -  
motor nerve

Superior Rectus  
+ Levator palpebrae  
Superioris

2 → branches } Superior.  
                          } Inferior.

inferior ↓ rectus medial  
                  rectus + inferior oblique.

function: → movement of  
                  ↓ eye ball  
                  pupillary reflex.

Explanation

The oculomotor nerve has  
two different motor functions  
muscle function and pupil  
response.

muscle functions - your oculomotor  
nerve provides motor function  
to ~~your~~ four of the six  
muscles around your eyes.

these muscles help your eyes  
move and focus on objects.



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pupil response:

it is also helps to control the size of your pupil as it responds to light.

this nerve originates in the front part of your brainstem. it moves forward from that area until reaches the area of your eye socket.

Trochlear nerve:-  
motor nerves.

function:- Supply to Superior oblique muscles (SO) abduction & adduction of eye ball.

Explan:-

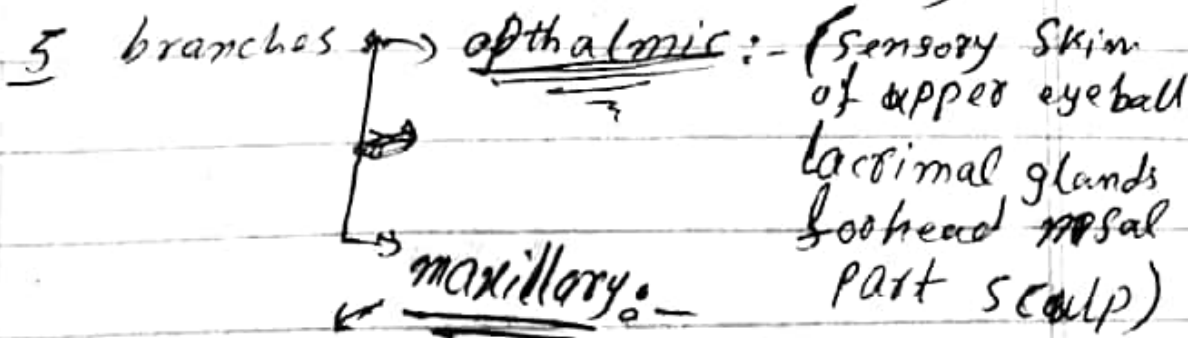
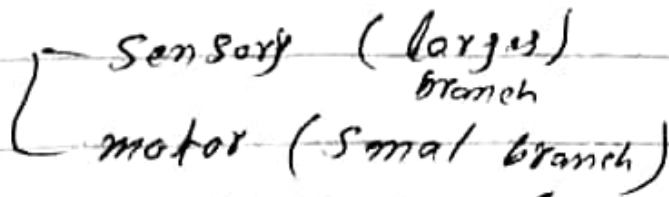
The trochlear nerve control your Superior oblique muscles. This is the muscles that responsible for downward, outward and inward eye movements.

it emerges from the back part of your midbrain. Like your oculomotor nerve. it moves forward until reaches your eye sockets, where it stimulates the Superior sockets. where it stimulates the Superior oblique muscle.



(5) Trigeminal nerve:-

⇒ it is a mixed nerves.



it is Sensory supply to nose  
pharynx lower eyeball upper jaw  
upper lips.

mandibular :-

Sensory nerve.

Anterior 2/3rd of tongue

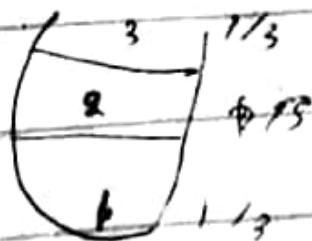
lower teeth nasal mucosa

motor → muscles of mastication

masseter lateral & medial

pterygoid, digastric

temporalis



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Explain:- Trigeminal  
nerves

The trigeminal nerve is the largest of your cranial nerve and has both sensory and motor functions

The trigeminal nerve has three divisions which are.

• Ophthalmic:-

The ophthalmic division sends sensory information

from the upper part of your face, including your forehead

scalp and upper eyelids

Maxillary:- the division

communicates sensory information

from the middle part of your

face, including your cheeks.

upper lip and nasal cavity

mandibular:-

The mandibular division communicates has both sensory and motor function. It sends sensory information from your ears, lower lip and chin. It also controls the movement of muscles within your jaw and ear. The trigeminal nerve originates from a group of nuclei which is a collection of nerve cells - in the midbrain and medulla region of your brainstem - eventually. These nuclei form a separate sensory root and motor root.

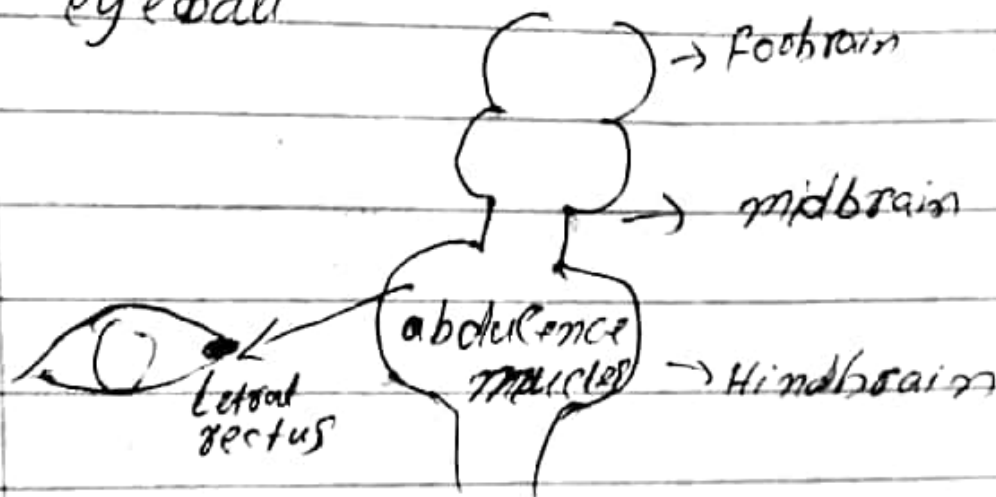
(5) Abducens nerves -

it is motor nerves

ORIGIN - abducens muscles  
in pons.

Function: - Supply to lateral  
rectus

Cause abduction of  
eyeball



EXPLAN -

The abducens  
nerves control another muscle  
that's associated with eye  
movement called the lateral  
rectus muscles. This muscle  
is involved in outward  
eye movement. For example  
you would use to look to the side

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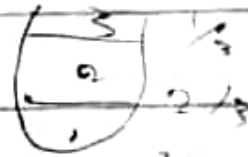
This nerve, also called the abducens nerve starts in the pons region of your brainstem it eventually enters your eye sockets. where it contacts the lateral rectus muscles.



## 7) Facial nerve (V)

Facial nerve provides both sensory and motor function including

- moving muscles used for facial expression as well as some muscles in your jaw.
- providing a sense of taste for most of your tongue



Supplying gland in your head or neck area

such as salivary glands and tear-producing glands

- Communicating sensation from the outer parts of your ear.

Your facial nerve has a very complex path.

It originates in pairs

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area of your brainstem where it has both a motor and sensory root, eventually.

The two nerves fuse together to form the facial nerve

Both within and outside of your skull, the facial nerve branches further into smaller nerve fibers that stimulate muscles and glands or provide sensory information.

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(8) Vestibulocochlear nerve:  
it is sensory nerve.

2 parts { Vestibular (Balance)  
Cochlear (hearing)

Function:-

Balance & hearing.

Explan:-

Your vestibulocochlear nerve has sensory function involving hearing and balance. It consists of two parts

The Cochlear portion and Vestibular

Cochlear portion.

Specialized cells within your ear detect vibrations from

sound based off of the

sound loudness and pitch

this generates nerve

impulses that are transmitted

to the Cochlear nerve.

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Vestibular portion:-

Another set of special cells in this portion can track both linear and rotational movement of your head. This information is transmitted to the vestibular nerve and used to adjust your balance and equilibrium. The Cochlear and vestibular portion of your vestibulocochlear nerve originate in separate areas of the brain.

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(9) Glossopharyngeal nerve:

mixed → sensory.  
→ motor.

Sensory → posterior 1/3rd of tongue  
Baroreceptors in carotid sinus  
muscles of mastication

EXPLANATION

The glossopharyngeal nerve has both motor and sensory functions including:

- Sending sensory information from your sinuses, the back of your throat.

- parts of your inner ear and the back part of your tongue.

- providing a sense of taste for the back part of your tongue.

stimulating voluntary



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movement of a muscle in  
The back of your throat  
called the stylopharyngeus  
The glossopharyngeal nerve  
originates in a part of your  
brainstem called the medulla  
oblongata. it eventually  
extends into your neck  
and throat region.

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- allowing motor control of muscles in your throat
- stimulation. The muscles of organs in your chest and trunk including those that move food through your digestive tract (peristalsis)
- providing a sense of taste near the root of your tongue.
- out of all of the cranial nerves, the vagus nerve has the longest pathway. It extends from your head all the way into your abdomen. It originates in the part of your brainstem called the medulla.

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④ Accessory nerves:-

it is motor nerve

function supply to SCM

Sternocleidomastoid

↓  
side bending rotation.

Trapezius → shoulder shrugging

Explan:- your hypoglossal nerve

is the 12 cranial nerve

which is responsible for

the movement of most of

the muscles in your tongue

it starts in the medulla

oblongata and moves down

into the jaw, where it

reaches the tongue.

⑫ Hypoglossal nerves-

it is motor nerve

Supply to tongue.

(Swallowing + chewing + Speech)

Explan:-

Your hypoglossal nerve is the 12th cranial nerve which is responsible for the movement of most of the muscles in your tongue.

It starts in the muscles in your tongue. It

starts in the medulla oblongata and moves down into the jaw.

where it reaches the tongue.



Accessory nerves -

It is motor nerve

Function: supply to SCM

Sternocleidomastoid.



Side bending rotation.

Trapezius → shoulder shrugging

Example:-

your accessory nerve that control the muscles in your neck. these muscles allow ... to rotate head ...

-: Cranial nerve  
diagram:-

Explore this interactive  
3-D diagram below to  
learn more about the  
12 Cranial nerves

Cranial Nerve

Brain Spinal Cord

Disorders Symptom.

Symptoms of cranial nerve disorders depend on which nerves are damaged and how they were damaged.

Cranial nerve disorders can affect smell, taste, vision, sensation in the face.