

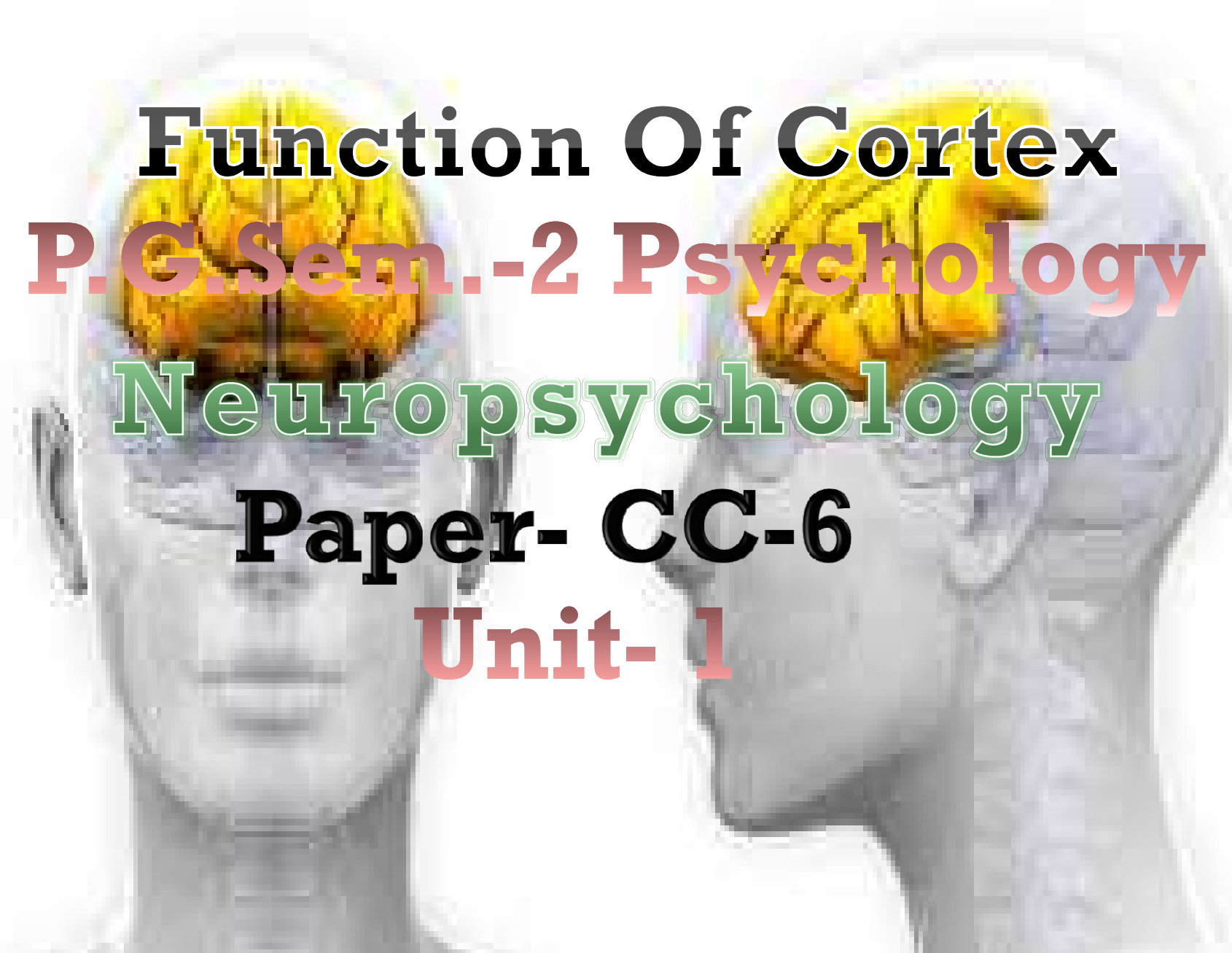


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The background of the slide features two human heads in profile, facing each other. The brains inside the heads are highlighted with a bright, glowing yellow and orange light, making them stand out against the greyish tones of the rest of the image. The overall aesthetic is clean and professional, suitable for an academic presentation.

Function Of Cortex
P.G.Sem.-2 Psychology
Neuropsychology
Paper- CC-6
Unit- 1

CEREBRUM

The Cerebrum: Also known as the cerebral cortex, is the largest part of the human brain, and it is associated with higher brain function such as thought and action. Nerve cells make up the gray surface, which is a little thicker than our thumb. Its wrinkled surface increases the surface area, and is a six-layered structure found in mammals, called the neocortex. It is divided into four sections, called “lobes”. They are; the frontal lobe, the parietal lobe, the occipital lobe and the temporal lobe.

Cerebral Cortex (lobes)

Divided into 4 lobes:

Frontal: motor function, motivation, aggression, smell and mood

Parietal: reception and evaluation of sensory info.

Temporal: smell, hearing, memory and abstract thought

Occipital: visual processing



Brain Function (Segregated by Lobes)

FRONTAL LOBE:

Premotor Cortex:

Storage of motor patterns

Prefrontal Area:

Concentration
Elaboration of thought
Judgment
Inhibition
Personality
Emotional traits

Broca's Area:

Language production

Motor Cortex:

Voluntary motor activity

PARIETAL LOBE:

Processing sensory input
Sensory discrimination
Body orientation
Primary somatic area
Secondary somatic area

Wernicke's Area:

Language comprehension

OCCIPITAL LOBE:

Visual reception area
Visual interpretation

TEMPORAL LOBE:

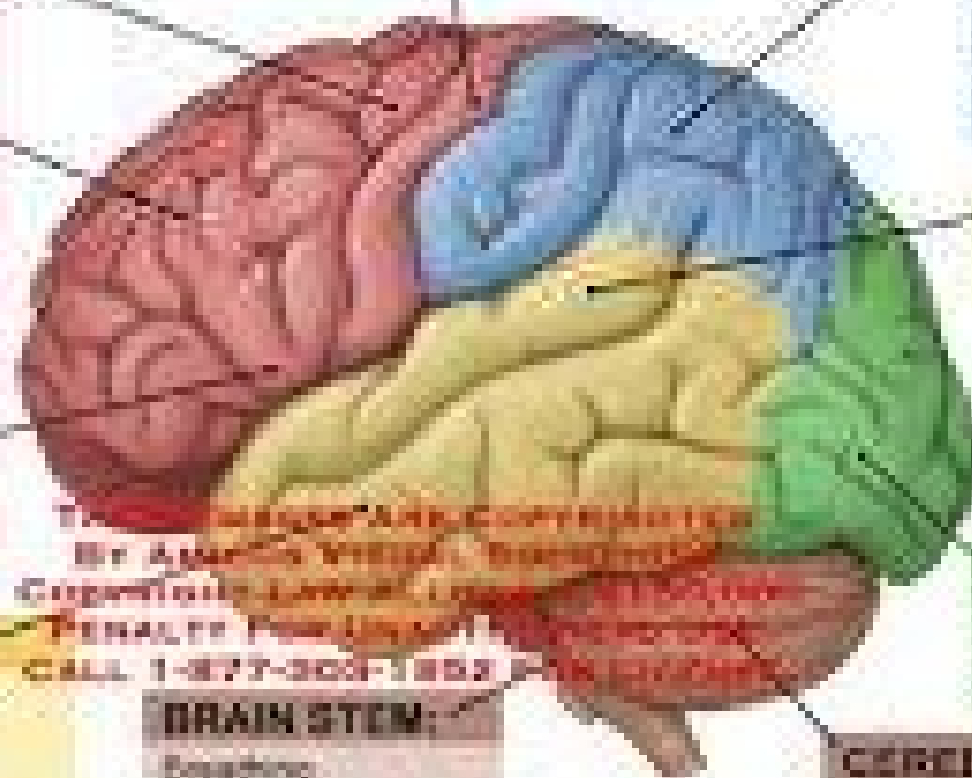
Auditory reception area
Expressed behavior
Receptive Speech
Memory / Information retrieval

BRAIN STEM:

Breathing
Digestion
Heart control
Eye/ muscle control
Alertness

CEREBELLUM:

Coordination and control
of voluntary movement



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Cerebral Cortex

Parts of Cerebral Cortex on the basis of localisation---

- 1. Sensory Cortex**
- 2 .Motor Cortex**
- 3 . Association Cortex**

SENSORY CORTEX

The **sensory cortex** is a section of the cerebral cortex which is responsible for receiving and interpreting sensory information from different parts of the body. Stimuli received from different receptors such as nociceptors and thermo receptors are transduced to an action potential which is conveyed along one or more afferent neuron to a specific section of the brain.

PARTS OF SENSORY CORTEX

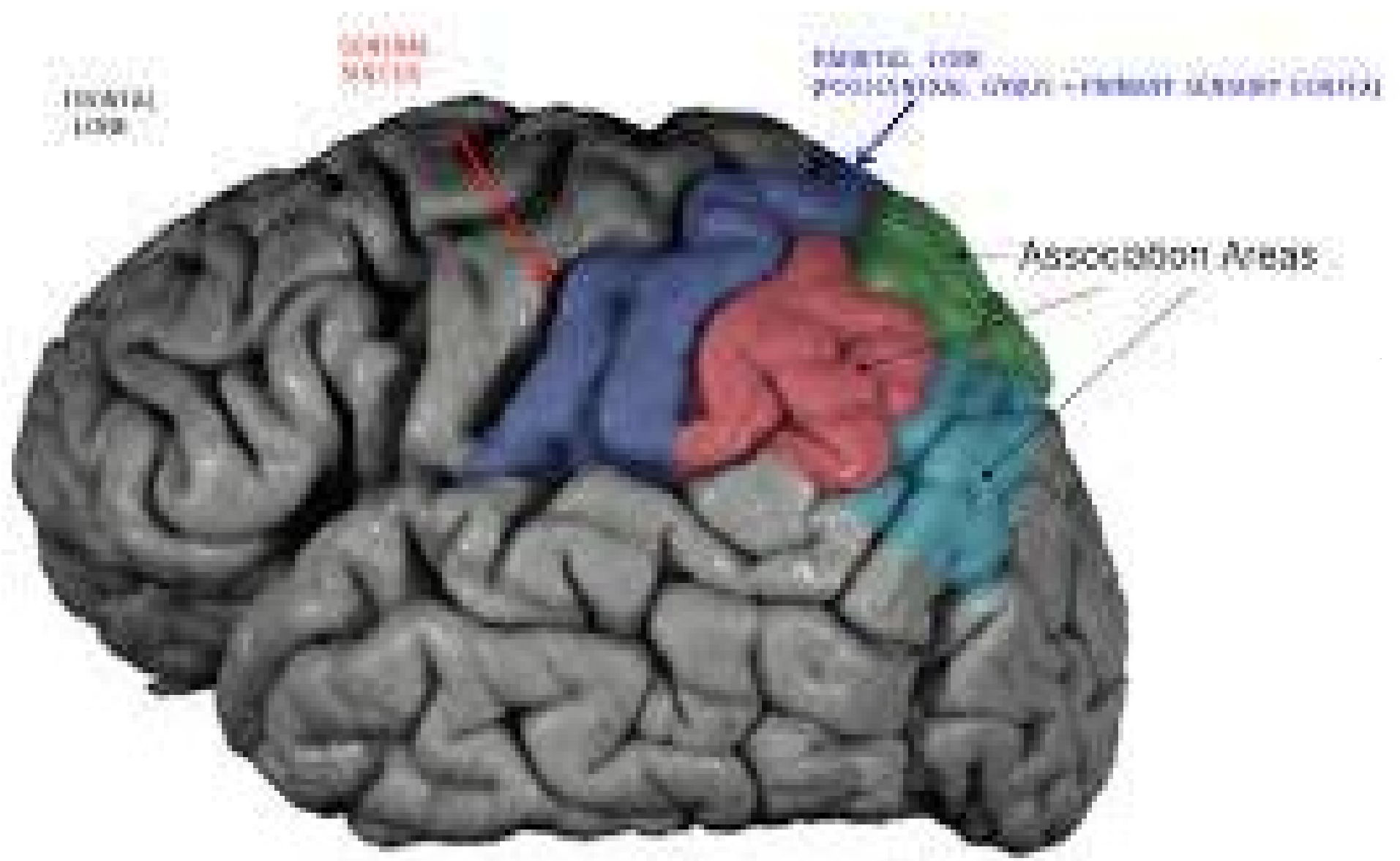
The sensory cortex comprises the –

Visual Area

Auditory Area

Somatosensory Area

SENSORY CORTEX



VISUAL AREA

The **visual cortex** commonly known as **cortex visualis** in Latin is part of the sensory cortex found in the occipital lobe. Furthermore, the occipital lobe is one of the four primary lobes of the human brain and it acts as the visual processing center. For the visual cortex to respond, visual information from the eyes passes through the lateral geniculate nucleus found in the thalamus.

VISUAL..CON..

Both the right and left hemispheres of the human brain contain the visual cortex .The visual cortex found in the left hemisphere receives radiations from the right visual field whereas the visual cortex in the right hemisphere receives radiations from the left field of vision.

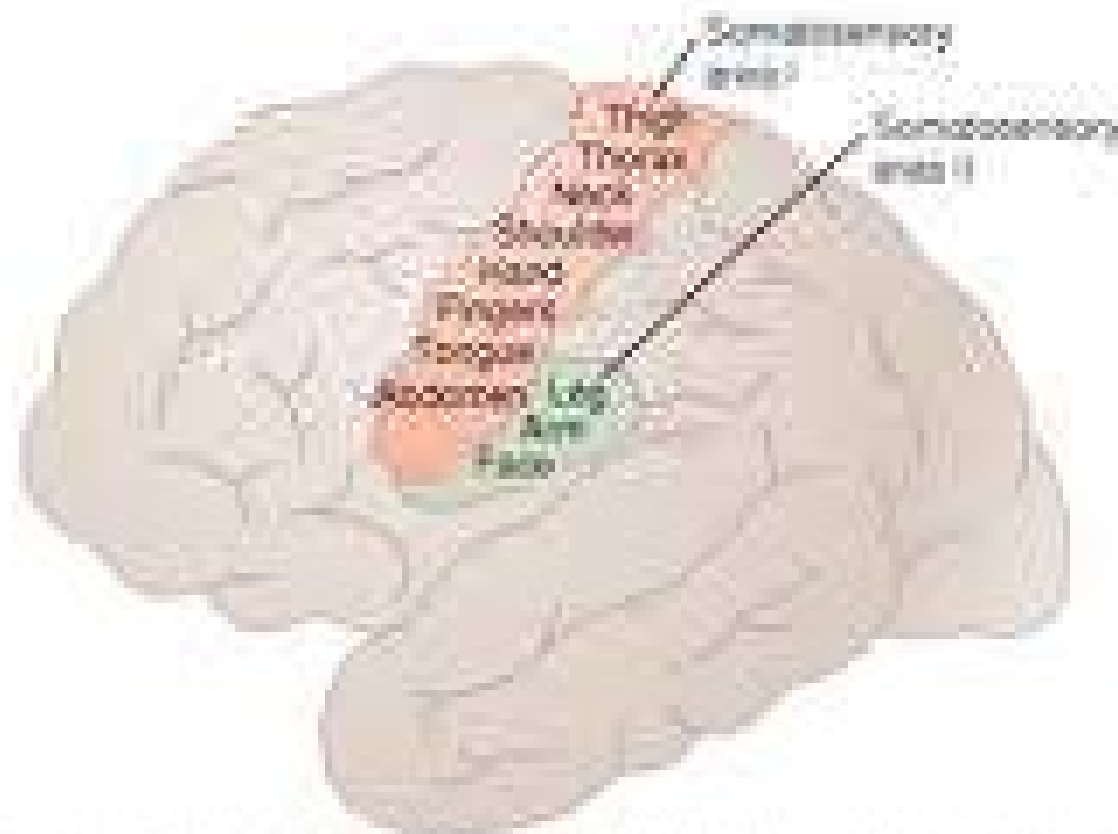
Auditory Area

The **auditory cortex** is positioned on the upper side of the temporal lobe. Its main role is to process auditory information . In humans, the temporal lobe processes sensory input to clear meanings which facilitates language comprehension, visual memory and emotion association.

Somatosensory Area

The somatosensory system is distributed throughout all major parts of our body. It is responsible for sensing touch, temperature, posture, limb position, and more. It includes both sensory receptor neurons in the periphery (eg., skin, muscle, and organs) and deeper neurons within the central nervous system.

SOMATOSENSORY CORTEX



Somatosensory area I is so much more extensive and so much more important than somatosensory area II that in popular usage, the term "somatosensory cortex" almost always means area I.

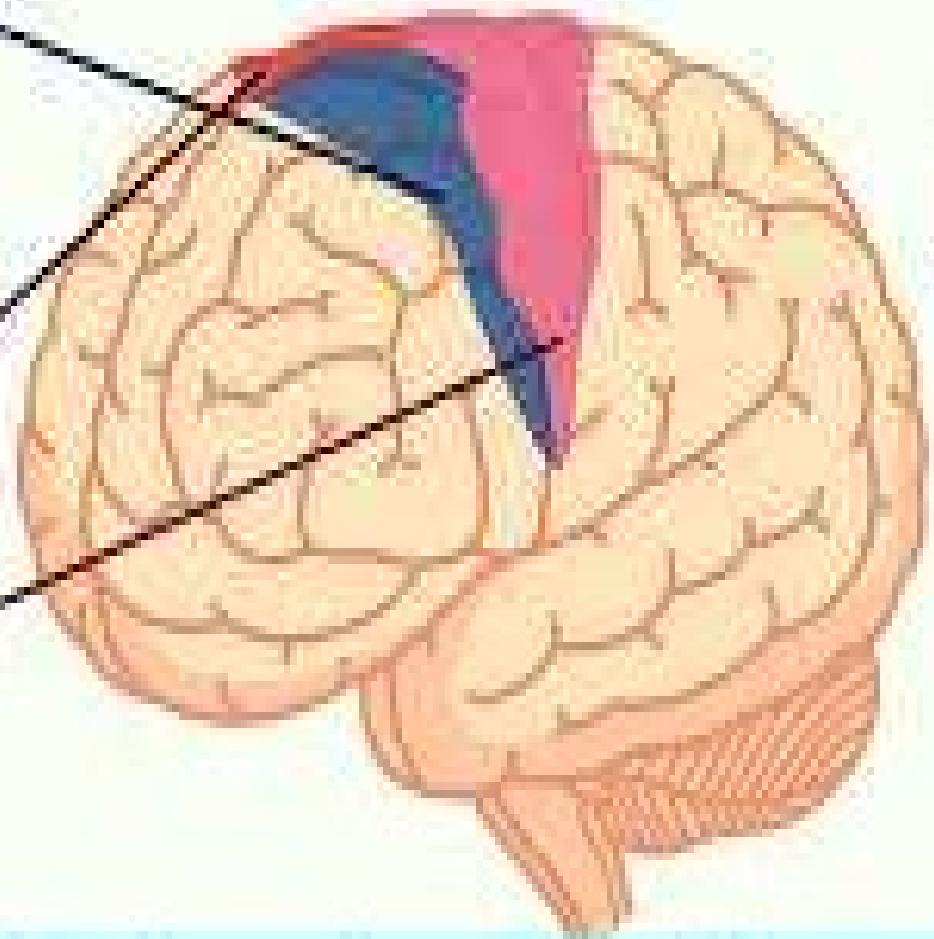
Cont....

The **sensory cortex** of the human brain is very important because it enables users to carry out our daily activities with ease. Dysfunctions of the sensory cortex may result in losing some sensing abilities such as hearing, sight or balance .

Premotor
Cortex

Supplementary
Motor area

Primary Motor
cortex



Motor cortex is involved in the control of voluntary movement.

MOTOR CORTEX

A primary motor cortex is present in each hemisphere and both are somatotopically organized. The medial and superior portions control the muscles of the feet and legs, and the lateral portions control the muscles of the thorax, arms and head.

Motor cont..

Each primary motor cortex controls the muscles on the opposite side of the body. In general, the premotor area anticipates and plans movements based on input from external or sensory cues, such as vision and auditory. . In contrast, the supplementary motor area selects and plans complex movements based on internal cues, such as memory.

Association Cortex

Association cortex is the parts of the cerebral cortex that receive inputs from multiple areas; association areas integrate incoming sensory information, and also form connections between sensory and motor areas. Because they are involved in organizing information that comes from various other areas of the brain, association areas are often linked to complex functions.

ASSOCIATION AREAS

- Make associations between different types of sensory information
- Associate new sensory input with memories of past experiences
- Also known as **higher order processing areas**
- Include:
 - Prefrontal cortex
 - Language area

Functional Regions of Cerebral Cortex

