



SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution

Coimbatore-35



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECT303-ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

III YEAR/ V SEMESTER

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UNIT 4 – NEURONS AND NEURAL NETWORKS

4.1





THE BRAIN & NEURONS



Neurons (also called neurones or nerve cells) are the **fundamental units of the brain and nervous system**

How many neurons in a brain?

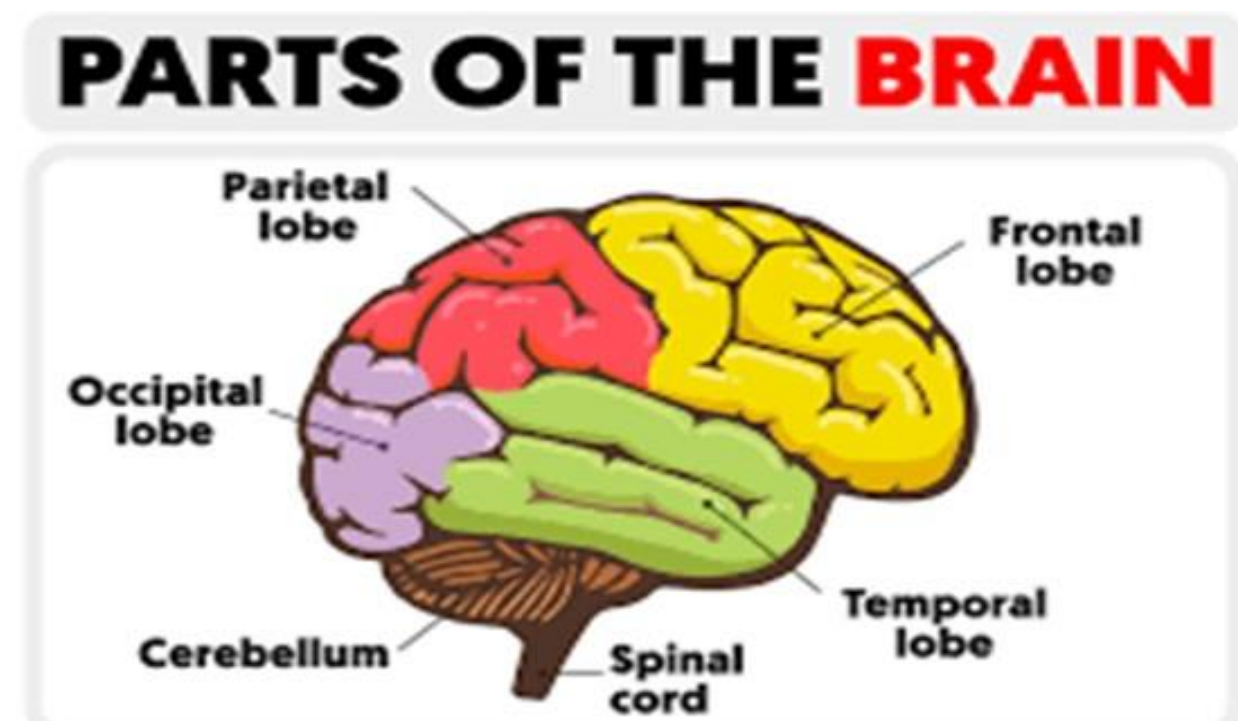
There are approximately **100 billion neurons** in a mature human brain. The naturally occurring neuronal cell death occurs prenatally, and elimination of about 50% of unwarranted connections among neurons occurs postnatally.

Types of neurons

1. Sensory neurons.
2. Motor neurons.
3. Interneurons.
4. Neurons in the brain.

7 functions of the brain?

1. Thoughts and decisions.
2. Memories and emotions.
3. Movements (motor function), balance and coordination.
4. Perception of various sensations including pain.
5. Automatic behavior such as breathing, heart rate, sleep and temperature control.
6. Regulation of organ function.
7. Speech and language functions.





THE BRAIN & NEURONS



Where are neurons in brain?

In a human, there are an estimated **10–20 billion neurons** in the **cerebral cortex** and **55–70 billion neurons** in the **cerebellum**.

What is brain and neural function?

- The brain is a complex organ that controls **thought, memory, emotion, touch, motor skills, vision, breathing, temperature, hunger and every process that regulates our body.**
- Together, the brain and spinal cord that extends from it make up the central nervous system, or CNS.

The basic functions of a neuron

1. Receive signals (or information).
2. Integrate incoming signals (to determine whether or not the information should be passed along).
3. Communicate signals to target cells (other neurons or muscles or glands).

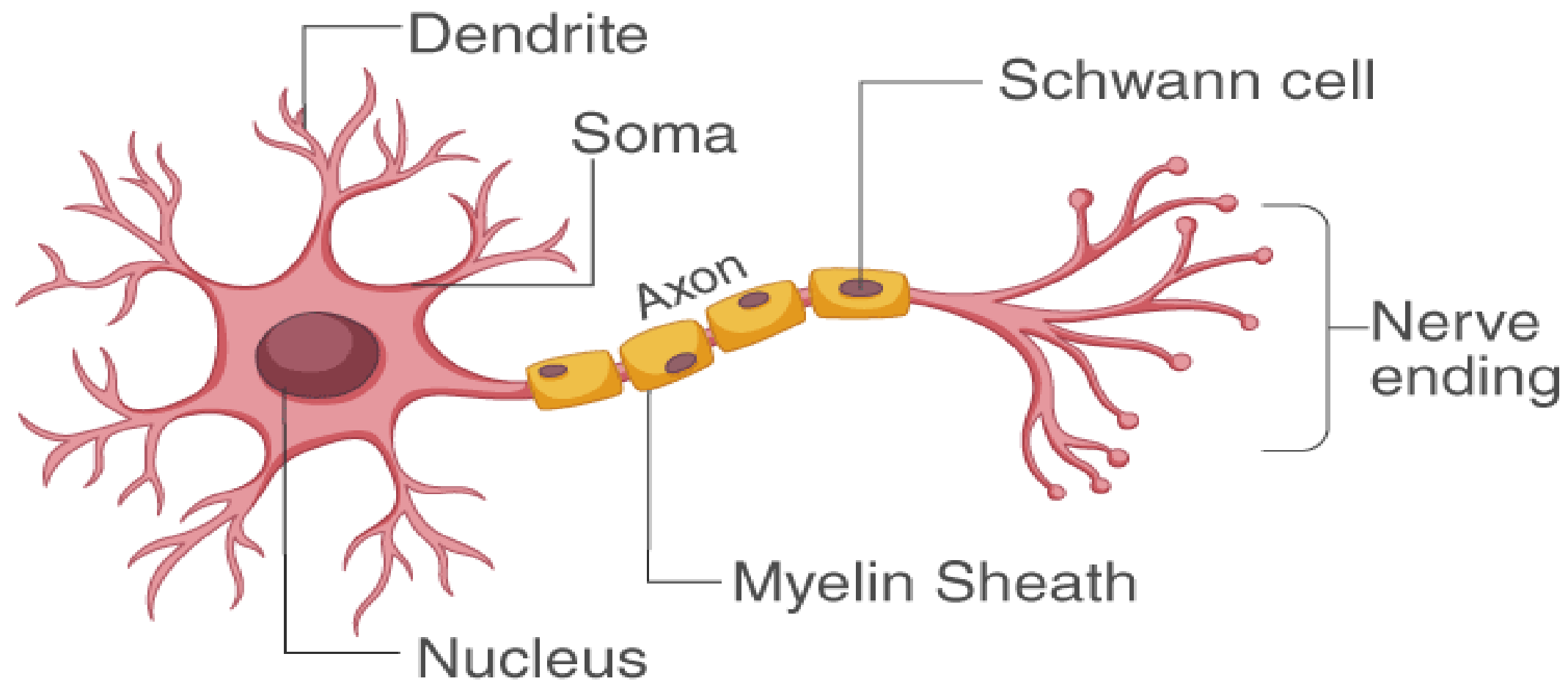
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THE BRAIN & NEURONS



STRUCTURE OF NEURON





THE BRAIN & NEURONS



Parts of a Neuron with Functions

