1. Answer the following short questions.

i. What is a stimulus?

Ans: A stimulus is something that causes a reaction or response in an organism, like when you touch something hot and quickly pull your hand away.

ii. What do you call an action taken as a result of a stimulus?

Ans: An action taken as a result of a stimulus is called a response.

iii. Name the five sense organs and the senses to which they correspond?

Ans: The five main sense organs are the skin, tongue, nose, eyes, and ears. The skin is sensitive to touch, the tongue is sensitive to taste, the nose is sensitive to smell, the eyes to sight, while the ears are sensitive to hearing and balance.

iv. What are the two parts of the central nervous system? Explain.

Ans: The two parts of central nervous system are brain and spinal cord. The brain is the control center of the body. It is responsible for everything from thinking and feeling to controlling movement.

The spinal cord is a long, thin bundle of nerves that runs down the back. It carries messages between the brain and the rest of the body

v. Why are reflexes important?

Ans: Reflexes are our body's rapid, involuntary responses to stimuli. They help us react quickly to potentially harmful situations, such as pulling our hand away from a hot object or blinking when something approaches our eyes.

vi. List the main functions of the cerebrum, cerebellum and medulla oblongata.

Ans: **Cerebrum**

It is responsible for thinking, intelligence, consciousness and memory.

Cerebellum

The cerebellum keeps the body balanced and coordinates the different parts of the body.

Medulla oblongata

It keeps our heart, beating regularly and tells our lungs when to breathe in and when to breathe out.

2. Answer the following long questions:

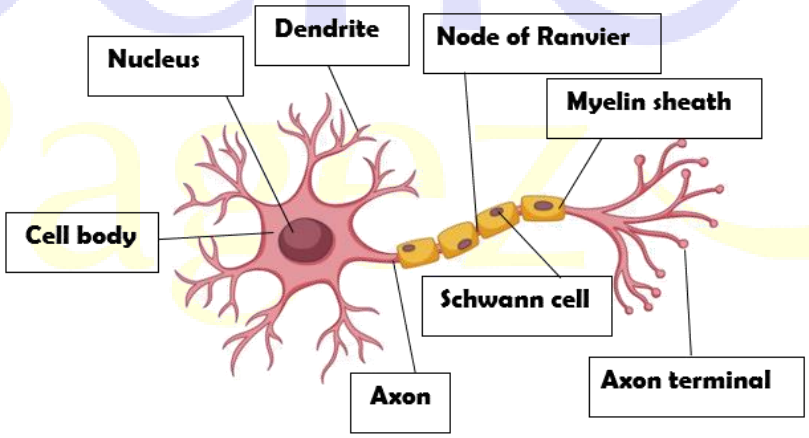
i. What is difference between a nerve, a nerve cell or neuron?

Nerve	Neuron
Nerves are bundles of nerve cells that are held together by connective tissue.	Neurons are specialized cells that transmit nerve impulses from brain to body parts.
Found only in the peripheral nervous system.	Found in both peripheral and CNS.
Composed of many nerve fibers, blood vessels, and lymphatics.	Composed of an axon, cell body and dendrites.
It has bundle of axons.	It has only one axon.

ii. How are neurons adapted to carry out their particular job or function?

Ans: Neurons are adapted to carry out their specific functions through their unique structure and properties.

Structure of a neuron:



Cell body:

The cell body contains the nucleus and other organelles.

Dendrites:

The dendrites are short, branching extensions that receive signals from other nerve cells.

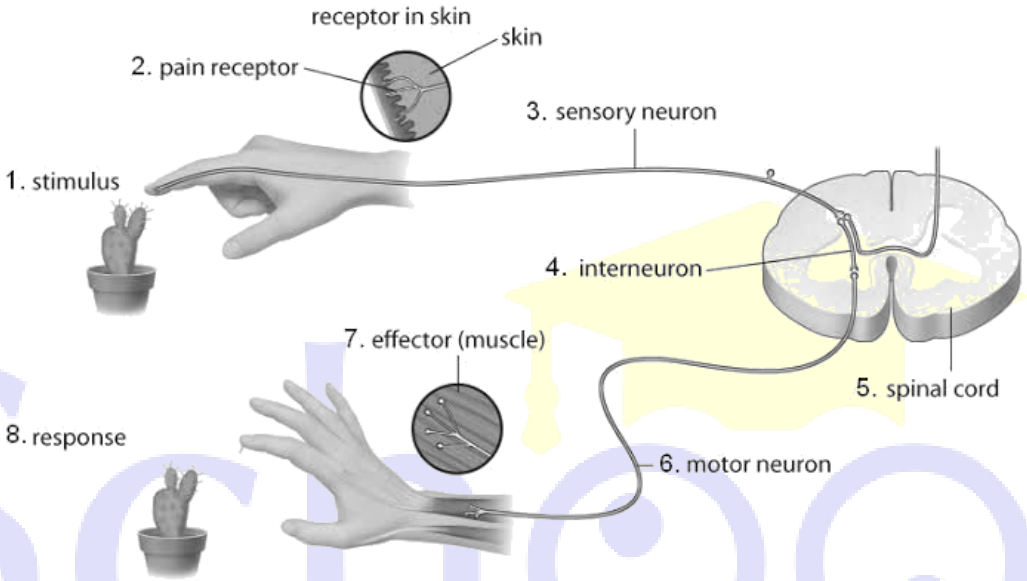
Axons:

The axon is a long, thin extension that transmits nerve impulses from the cell body to the axon terminals that passes the impulses to another neuron.

Synapses:

Neurons communicate with each other at synapses.

iii. Draw a simple diagram of a reflex arc to show what would make you move forwards quickly if you stepped back into a prickly pear plant.



iv. Explain the difference between a voluntary action and an involuntary action.

Voluntary action	Involuntary action
The action of the body which is in our control is called voluntary action.	The action of the body which is not in our control is called involuntary action.
It is controlled by the brain.	It is controlled by the spinal cord.
It is a slow response.	It is a rapid response.
The same stimulus may generate several responses.	The same stimulus always leads to the same response.
For example, walking, running, raising a hand, etc.	For example, blinking, digestion, pumping of the heart

v. What is autonomic nervous system? Explain.

Ans: The autonomic nervous system is a part of peripheral nervous system. It controls involuntary functions, such as breathing, heart rate, and digestion.

Division of Autonomic Nervous System

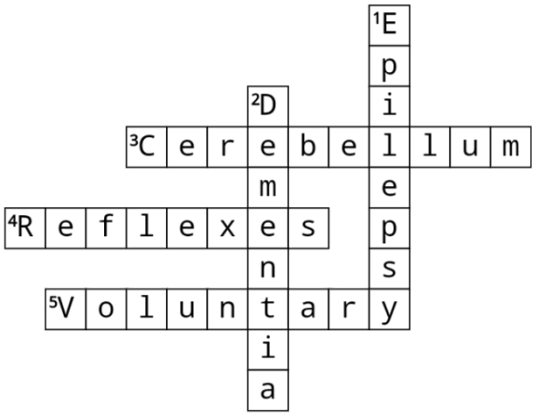
Autonomic nervous system is further divided into two parts.

- **Sympathetic nervous system (fight or flight)**
  The "fight or flight" system that gears you up for the action in stressful situations, increasing heart rate and alertness.
- **Parasympathetic nervous system (rest or digest)**
  The "rest and digest" system that helps you relax, slowing heart rate and aiding in digestion and recovery.

3. Tick the right option.

1. The central nervous system is made up of:			
I. Only the brain	II. Only the spinal cord	**III. The brain and the spinal cord**	IV. Every nerve in the body
2. The human brain weighs about			
I. 0.5 kg	II. 1.0 kg	**III. 1.5 kg**	IV. 2.0 kg
3. The Brain contains billions of :			
I. Nerves	II. Nerve fibers	III. Nerve endings	**IV. Nerve cells**
4. The largest part of the brain is			
I. Cerebellum	**II. Cerebrum**	III. Brain stem	IV. Medulla oblongata
5. The body's automatic activities such as breathing and digestion are controlled by the:			
I. Cerebellum	II. Cerebrum	III. Brain stem	**IV. Medulla oblongata**

3. Crosswords



Across

4. Helps us stand
5. Sudden actions
6. Somatic nervous system

Down

1. Seizure
2. Dementia

4. Words Search

Find the following word in the words search.

Autonomic	Peripheral	Somatic	Sympathetic	Central

S	F	A	T	S	A	F	F	B	U	L
O	Y	A	B	L	I	O	N	U	Z	W
M	H	M	E	T	A	H	N	R	M	Z
A	M	U	P	C	L	E	S	R	F	W
T	V	N	C	E	N	T	R	A	L	D
I	I	I	U	E	T	R	A	W	F	E
C	P	E	R	I	P	H	E	R	A	L
C	R	O	C	O	D	I	T	E	Q	Q
F	W	T	I	F	S	S	W	I	E	S
G	A	U	T	O	N	O	M	I	C	

5. Jumbled Words

i.	SEPULIM	Impulse	ii.	EYMLIN	Myelin
iii.	CLESSUM	Muscles	iv.	VIERRAN	Ranvier
v.	IMUSTSUL	Stimulus	vi.	ANNWSCH	Schwann
vii.	CEPRETOR	Receptor	viii.	TORCOORDINA	Coordinator
ix.	FFECTORE	Effector		POSENRE	Response

6. Columns

Column A	Column B
Cerebellum	Coordination and balance
Spinal cord	Carries messages between brain and body
Fight or flight	Sympathetic nervous system
Somatic nervous system	Controls voluntary actions
Reflex arc	Pathway of nerve impulses

7. Fill in the blanks using the given words.

i. A nerve consists of a bundle of **nerve fibers.**

ii. The gaps between the nerve cells or neurons are called **synapses.**

iii. The body's **automatic** activities are controlled by medulla oblongata.

iv. Special type of actions, like sneezing and blinking, which you cannot control are called **involuntary actions.**

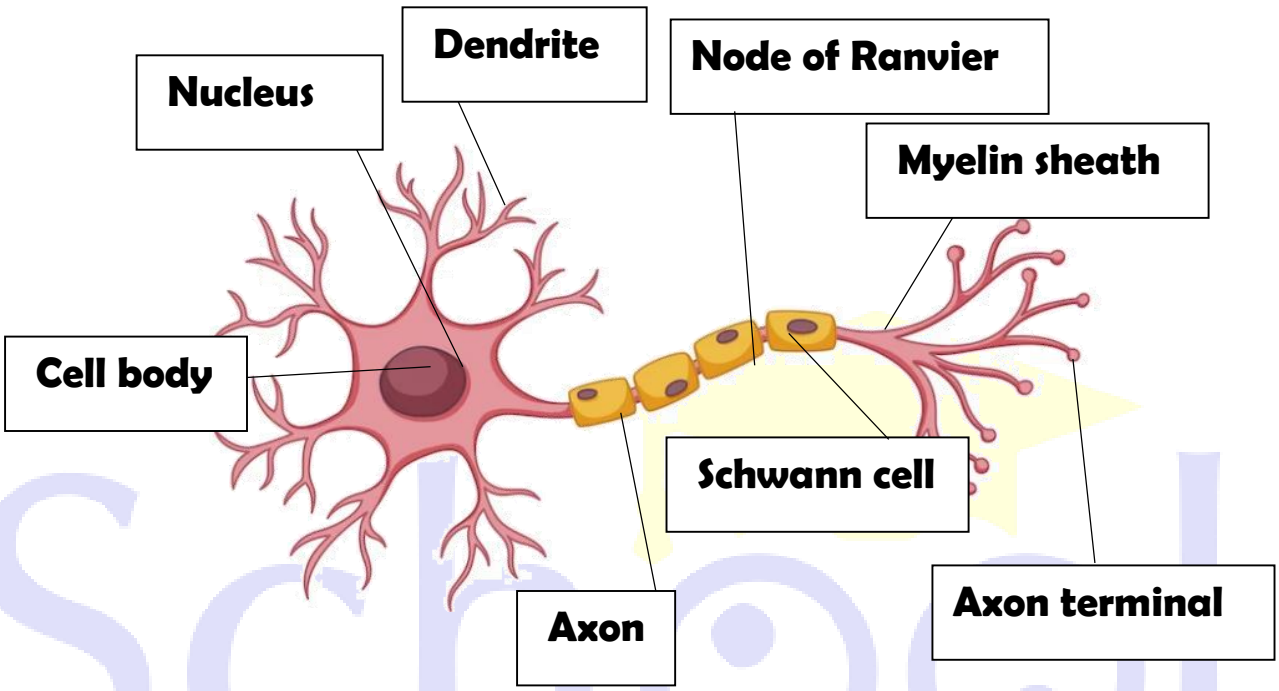
v. A boy blinking when he gets dust in his eyes is an example of **reflex** actions.

8. Write "T" for the true and "F" for the false statement.

i.	The human brain has about 1.5 kg weight.	T
ii.	The largest part of the human brain is cerebellum.	F
iii.	The brain stem control and maintain the blood pressure and body temperature of humans.	F
iv.	Each neuron has several inputs called dendrites.	T
v.	The left side of the cerebrum controls understanding, reading and thinking.	T

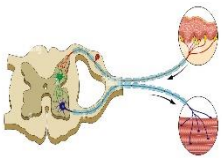
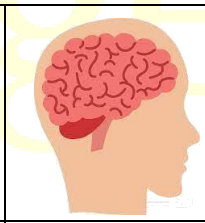
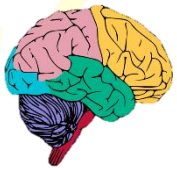
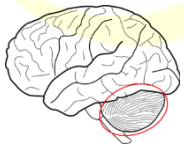
9. Label the diagram.

Structure of neuron



10. Drag and Drop

Look at the pictures and write their names in the relevant column.

				
Reflex arc	Brain	Cerebrum	Cerebellum	Spinal cord

Part	Function
Cerebrum	Creativity
Cerebellum	Coordination
Spinal cord	Reflex actions
Reflex arc	Pathway of nerve impulse
Brain	Control center

11. Comprehension

The nervous system controls everything in your body and helps you think, feel, and move. It has two parts: the central nervous system (brain and spinal cord) and the peripheral nervous system (nerves throughout the body). The brain is the thinking center with billions of neurons. It communicates with the body through the peripheral nervous system, letting you move and feel things. The autonomic nervous system keeps your heart beating and other important functions going, all without you thinking about it. The nervous system's job is to help you interact with the world and adapt to different situations. It's like your body's supercomputer, making everything work together.

i. **What is the function of nervous system?**
The nervous system controls everything in your body and helps you think, feel, and move.

ii. **Name the parts of the nervous system.**
It has two parts: the central nervous system (brain and spinal cord) and the peripheral nervous system (nerves throughout the body).