

UPDAAN



2025

Control and Coordination

Biology

Lecture - 03

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Topics to be covered

- 1 Types of Movement / actions ✓
- 2 Reflex action and reflex arc ✓
- 3 MCQ practice and Homework



Think and answer



Which of the following statement is not true ?

A Relay neuron links sensory and motor neuron ✓

B Axon is the longest part of a neuron ✓

C Sensory neuron carries nerve impulse to CNS ✓

☒ D Motor neuron carries nerve impulse to Receptor ✗

Effector

False

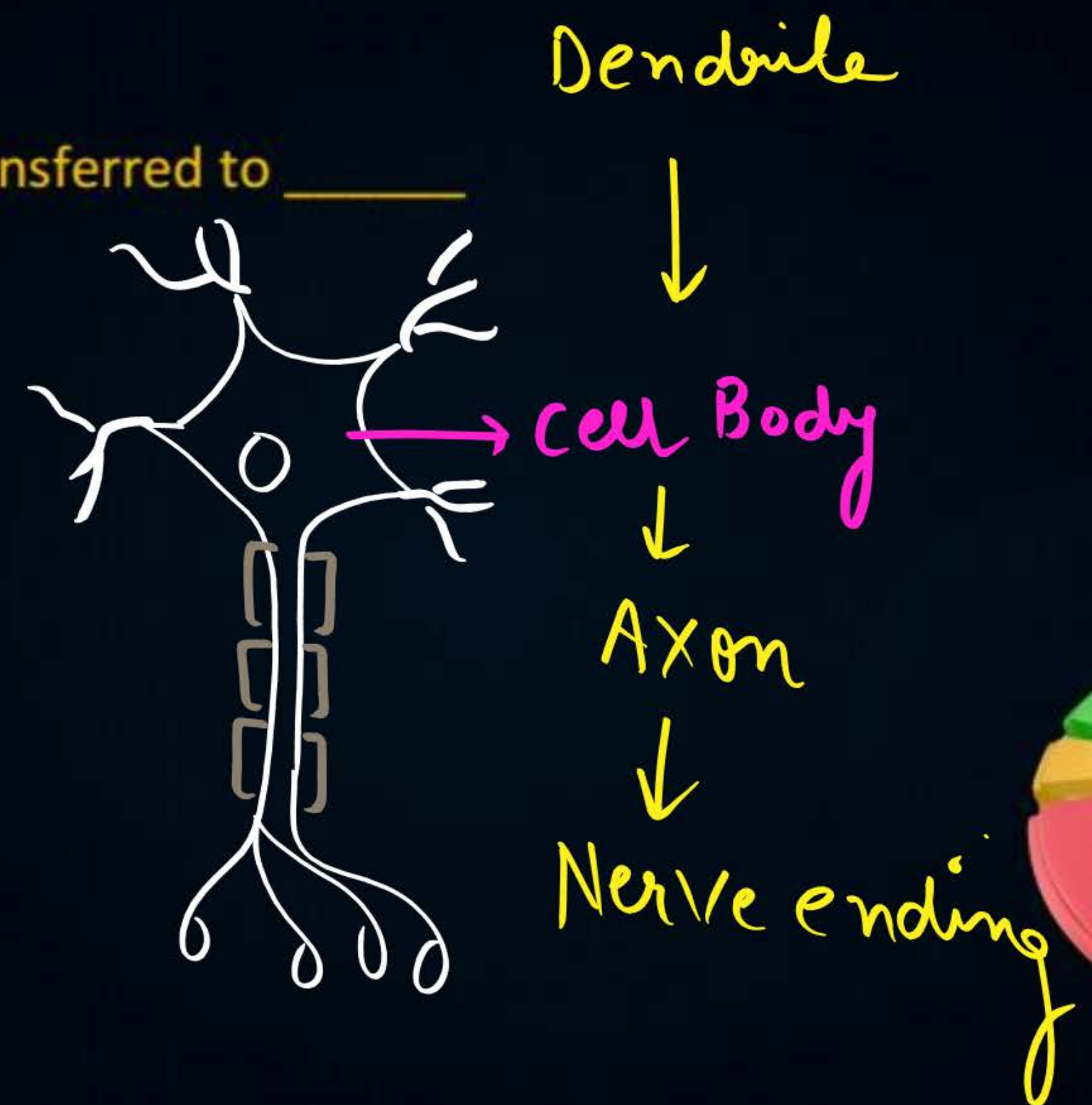


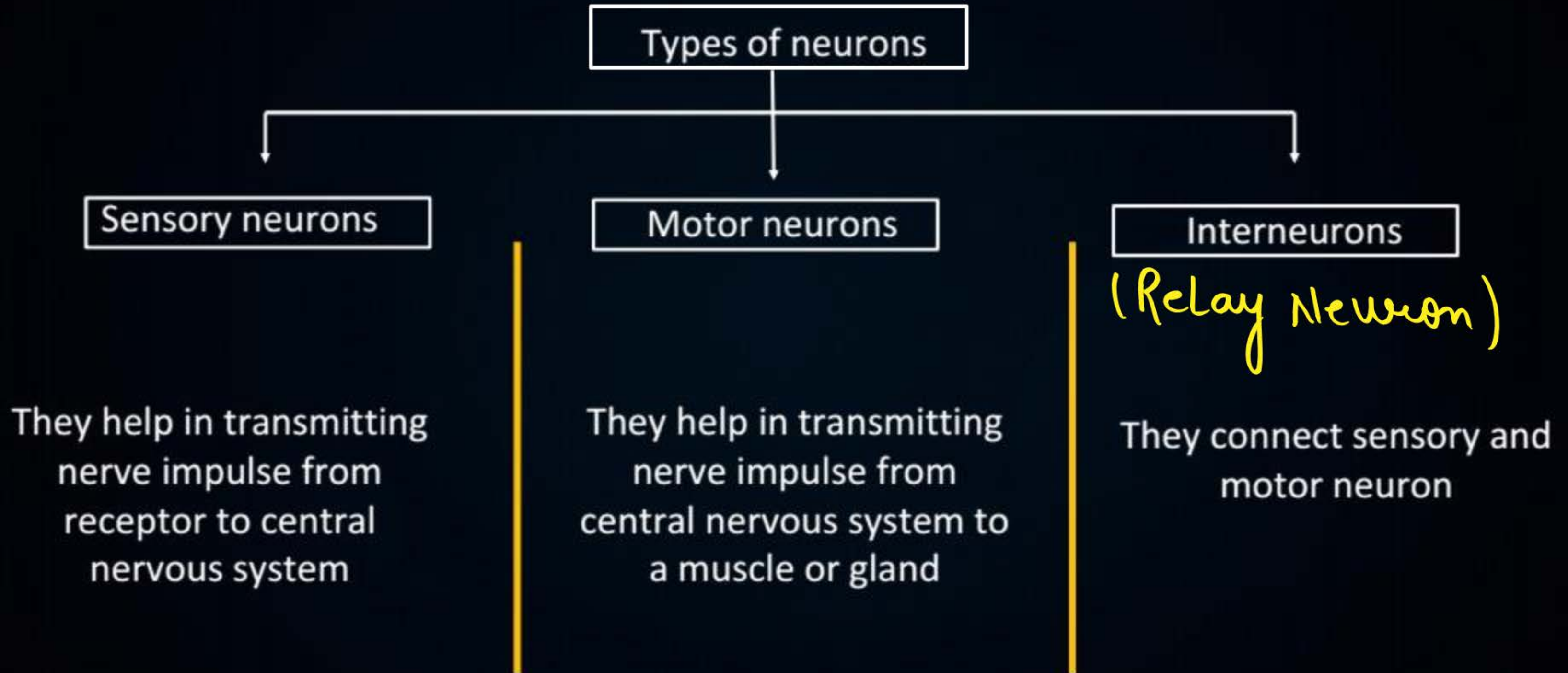
Think and answer

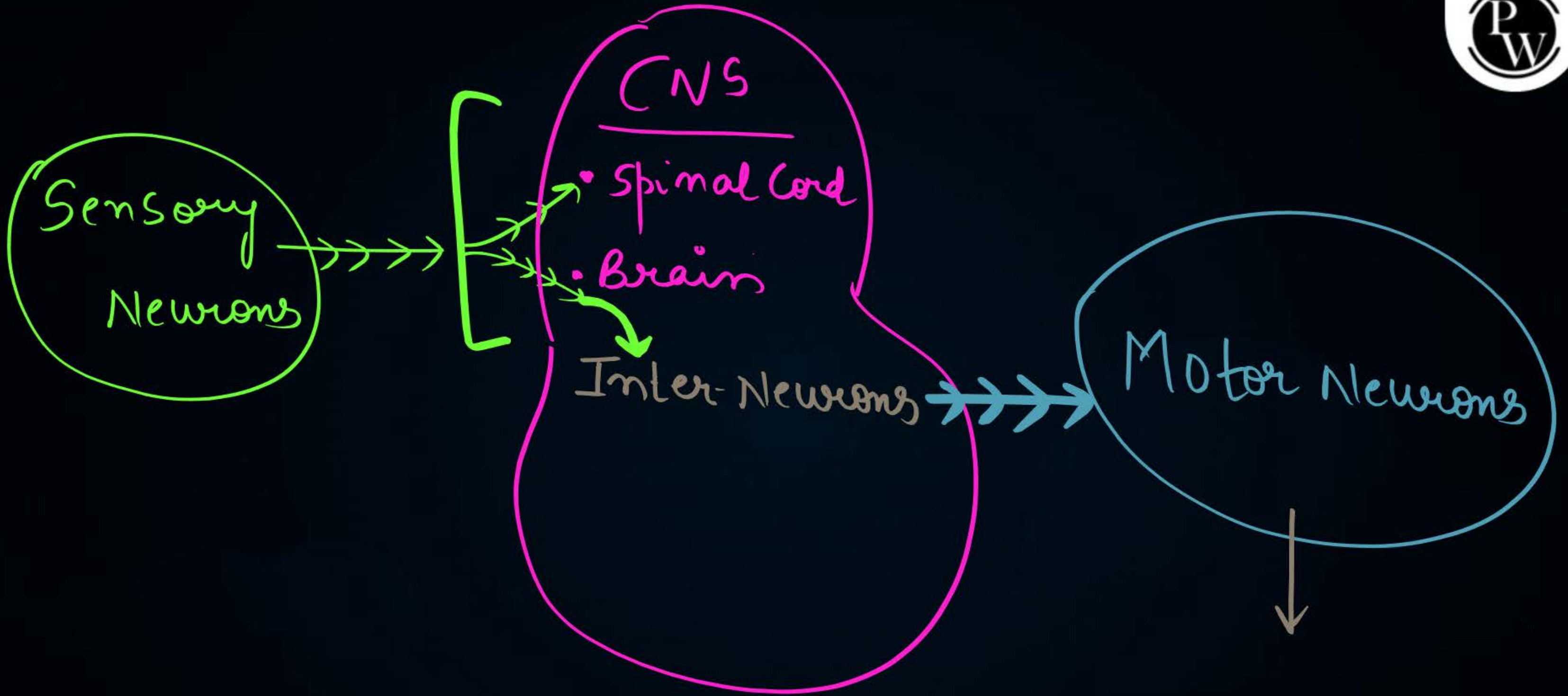


Signal from cell body is transferred to _____

- ☒ A Axon
- ☐ B Cyton
- ☐ C Dendrites
- ☐ D Neurotransmitters









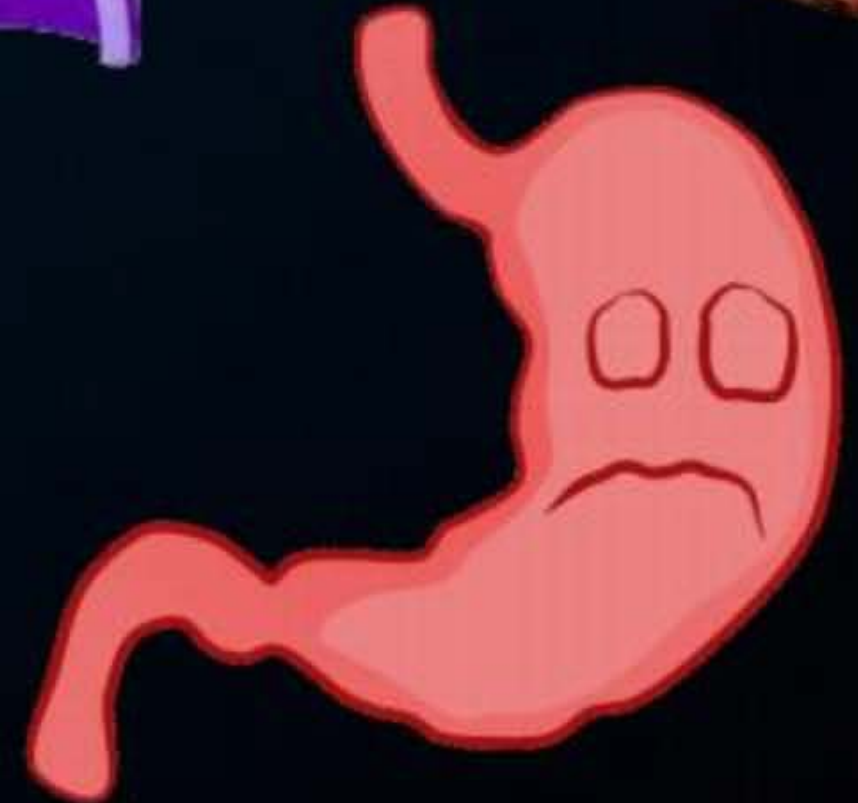
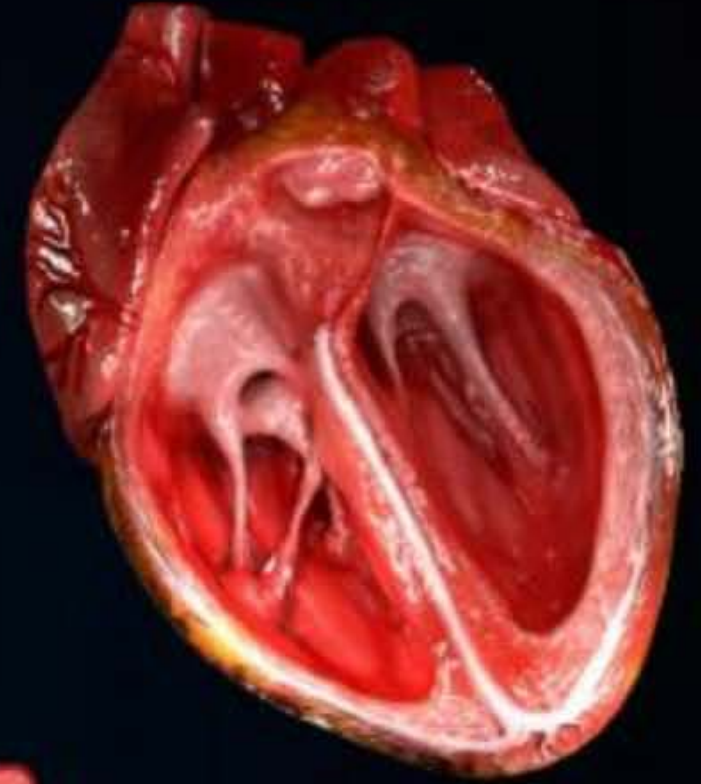
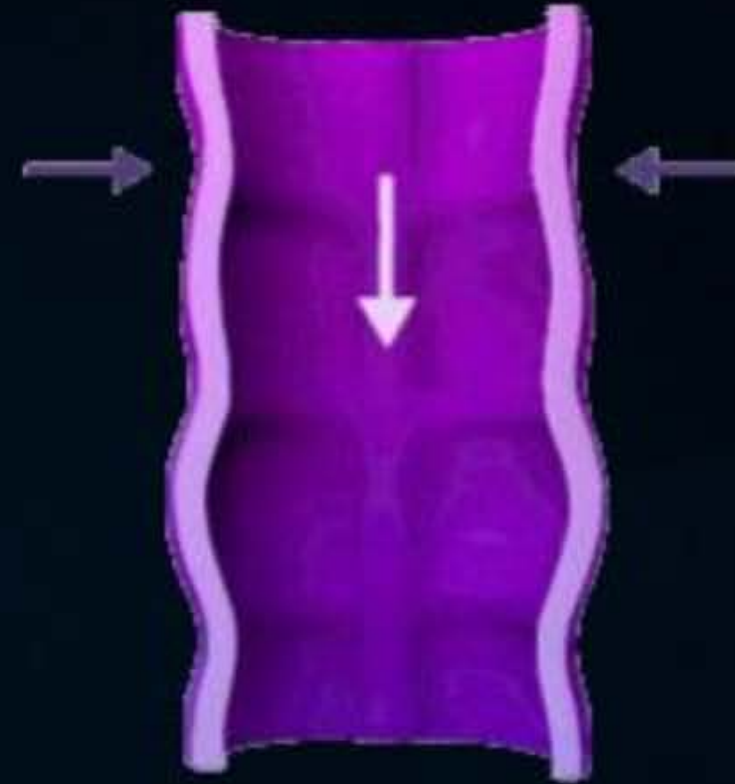
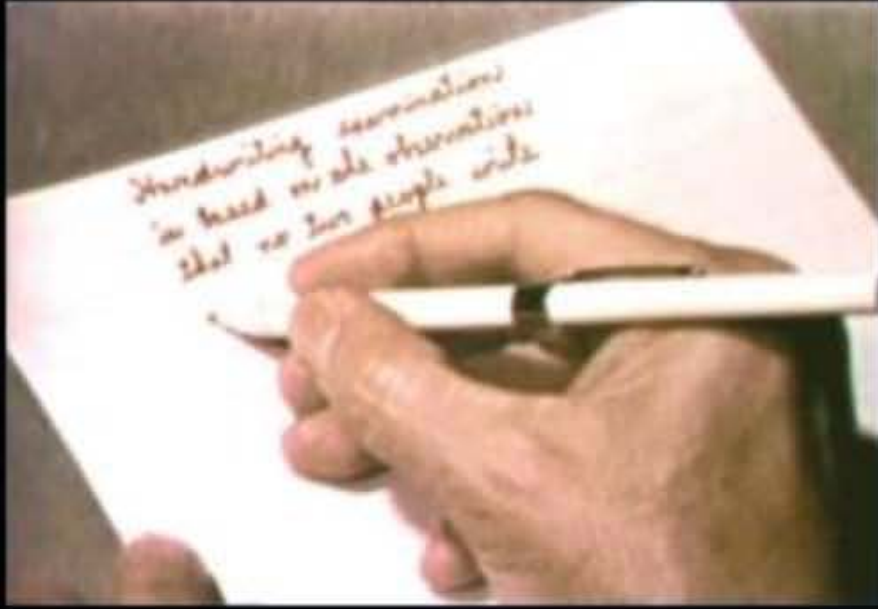
Question of the Day



Examples of neurotransmitters

- ↳ Dopamine
- Serotonin
- Acetyl-Choline
- GABA
- Glutamate

In daily life, our body performs many different actions / movements with the help of nervous system





①

Voluntary actions/ movements

- ✓✓ These actions can be controlled by our own will
- ↓
- Thinking is involved
- ↓
- Brain is involved

#Ch

②

Involuntary actions/ movements

- These actions can not be controlled by our own will
- Thinking is not involved
- Brain is involved

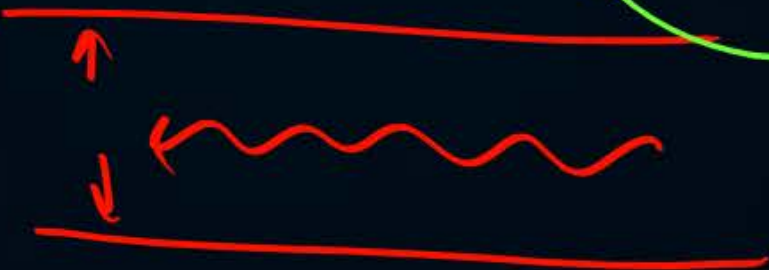
Mid brain
Hind brain

③

Reflex actions/movements

- These actions can not be controlled by our own will
- Thinking is not involved
- Brain is not involved, SPINAL CORD control such actions.



<i>Voluntary actions/ movements</i>	<i>Involuntary actions/ movements</i>	<i>Reflex actions/movements</i>
<ul style="list-style-type: none">• Walking ✓• Writing ✓• Dancing ✓• Jumping ✓	<ul style="list-style-type: none">• Pumping of blood <i>from heart</i>• Peristaltic movements ✓• Contraction relaxation of blood vessels ✓✓ <p><i>Ch!</i></p>  A diagram illustrating peristaltic movement. It shows two horizontal red lines representing the boundaries of a tube. Between these lines is a red wavy line representing the internal contents. On the left side, two small red arrows point in opposite vertical directions (one up, one down), indicating the contraction and relaxation of the tube walls. The wavy line is positioned towards the right, showing the forward movement of the contents.	<ul style="list-style-type: none">• Withdrawal of hand when touch an hot object ✓• Sneezing when dust particles enters into nose ✓



Reflex action/movements

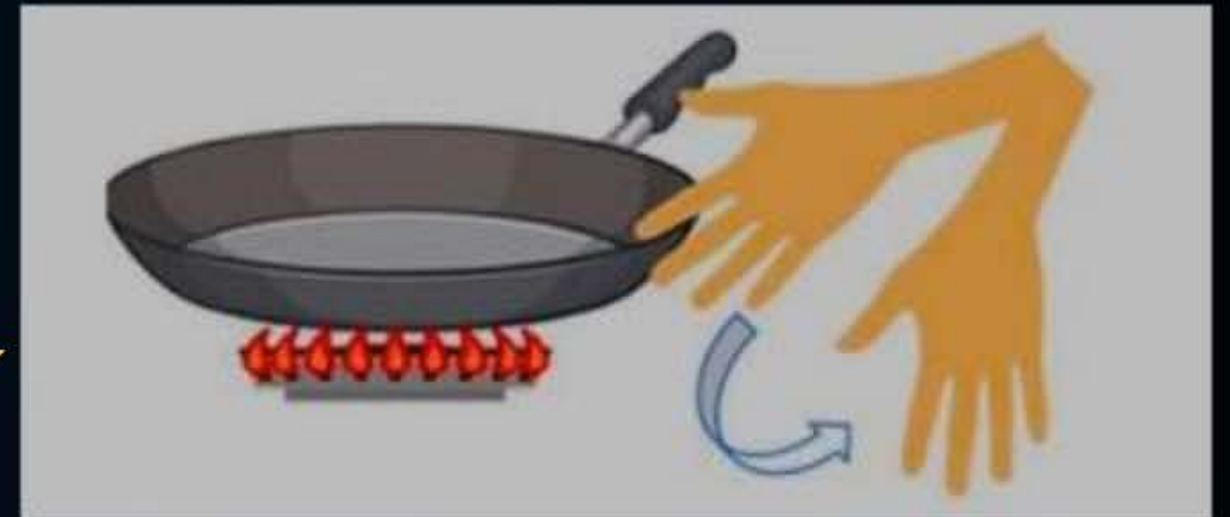


Bima Soche
aur Samjhe

Reflex actions can be defined as rapid, unconscious, immediate automatic and involuntary response of our body to a stimulus.

Controlled by : Spinal Cord

Brain is not involved




Withdrawing Hand on
Touching Hot Surface



Significance of Reflex action/movements



✓
As it is a fast action, it enables the animal to respond immediately to the harmful stimuli so that no harm is caused to it.



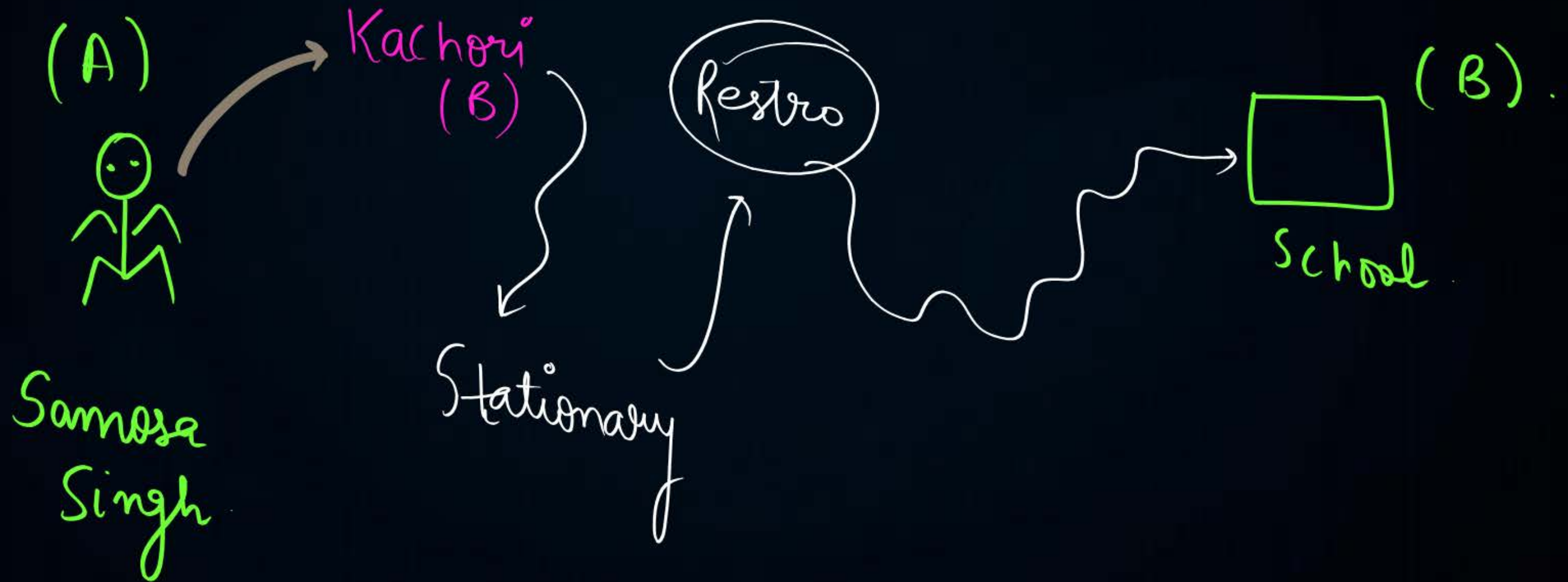


Reflex arc

Reflex action



The path travelled by an nerve impulse during a reflex action is called reflex arc. Signal Travelling through Nerves



Reflex Arc



Stimulus
(Heat)



Thermoreceptor
(Skin)

Sensory
Neuron

Spinal
Cord

[Relay
Neuron]

Motor
Neuron

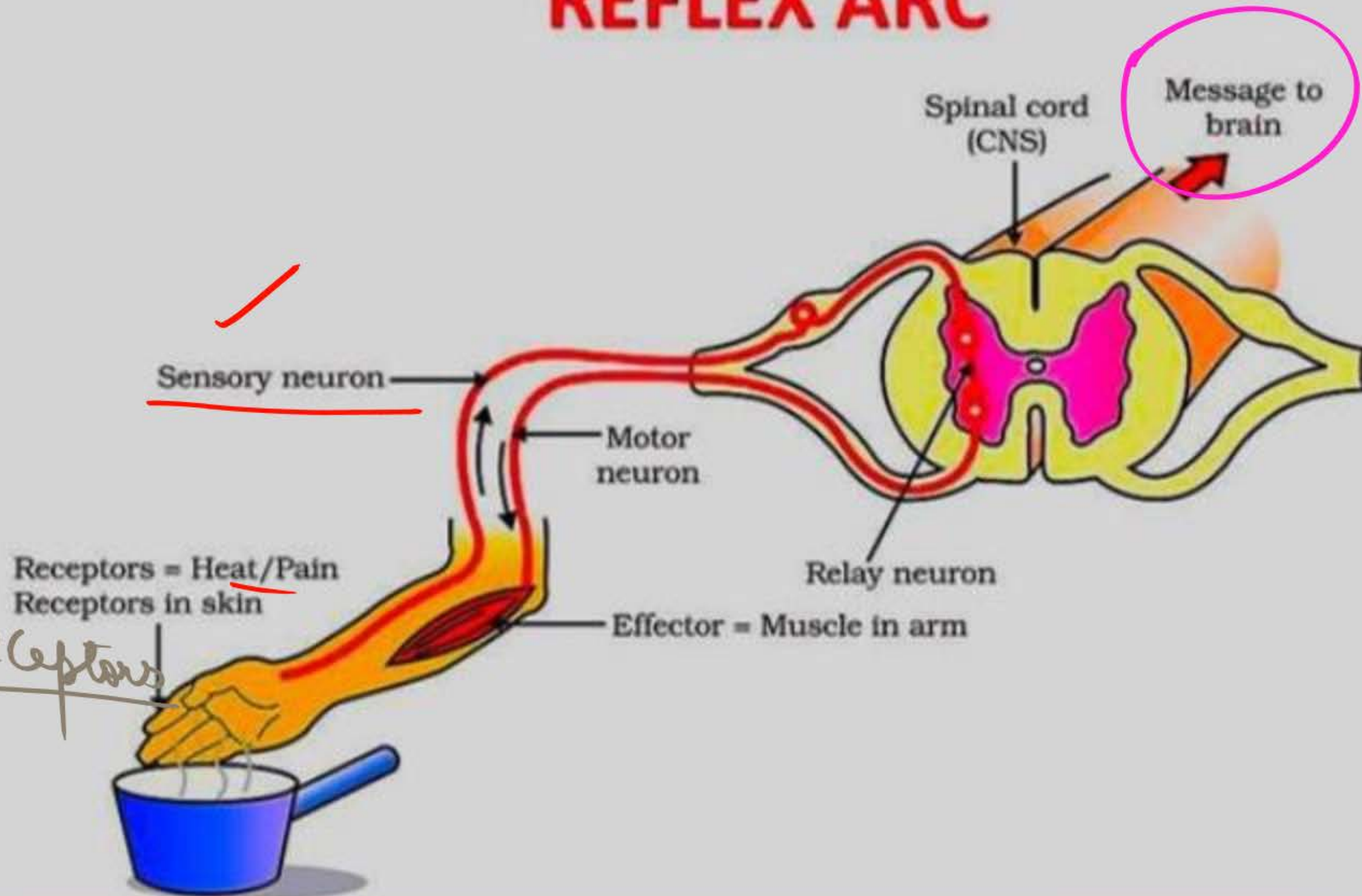
Muscle
of hand

[Effector]

Removal
of hand.



REFLEX ARC



Thermoreceptors



Think and answer



How does process of reflex action take place in human body ?

- The process of reflex action is like
- These impulses reach the spinal cord
- The relay neuron in the spinal cord passes signals between neurons.
- The motor neurons pass the signals for response to the organ that needs to respond to stimulus.
- { The information input also goes on to reach the brain. But it is not involved in reflex action. }

Think and answer



What is the role of the brain in reflex action?



Think and answer



What is the role of the brain in reflex action?

- There is no direct involvement of brain in reflex actions.
- When Reflex actions are generated in spinal cord the information also reaches brain. This helps the brain to record this event and remember it for future use. ✓
- ✓ Brain helps the person to get awareness of the stimulus and prevent himself from that situation again in the future.

Think and answer



Which of the following does not involve thinking ?

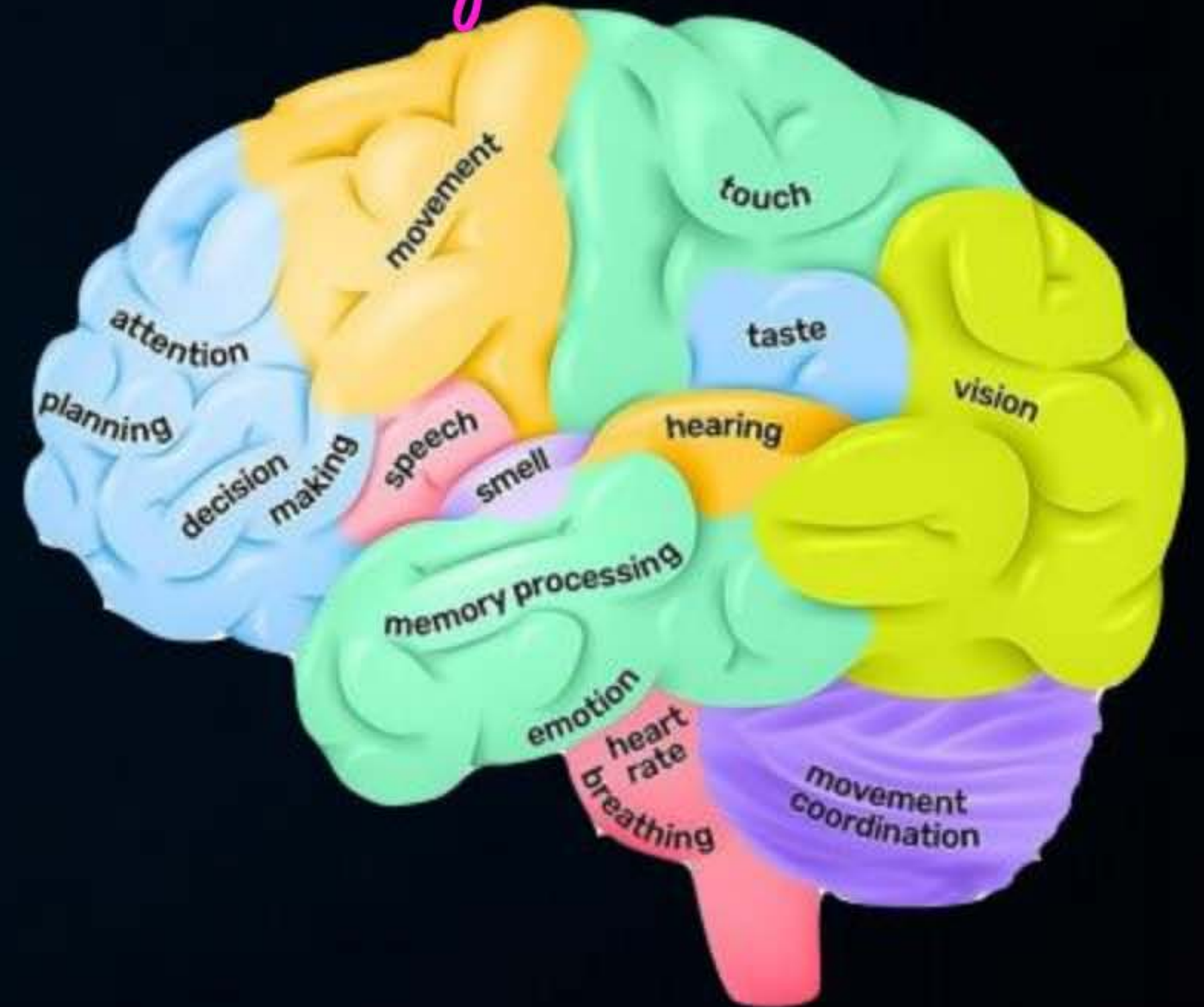
- A Peristaltic movement → *IV* → Thinking not involved.
- B Dancing → *V* → Thinking involved
- C Withdrawing hand after touching hot surface → *Reflex action*
Thinking Not involved.
- ☒ D Both A and c

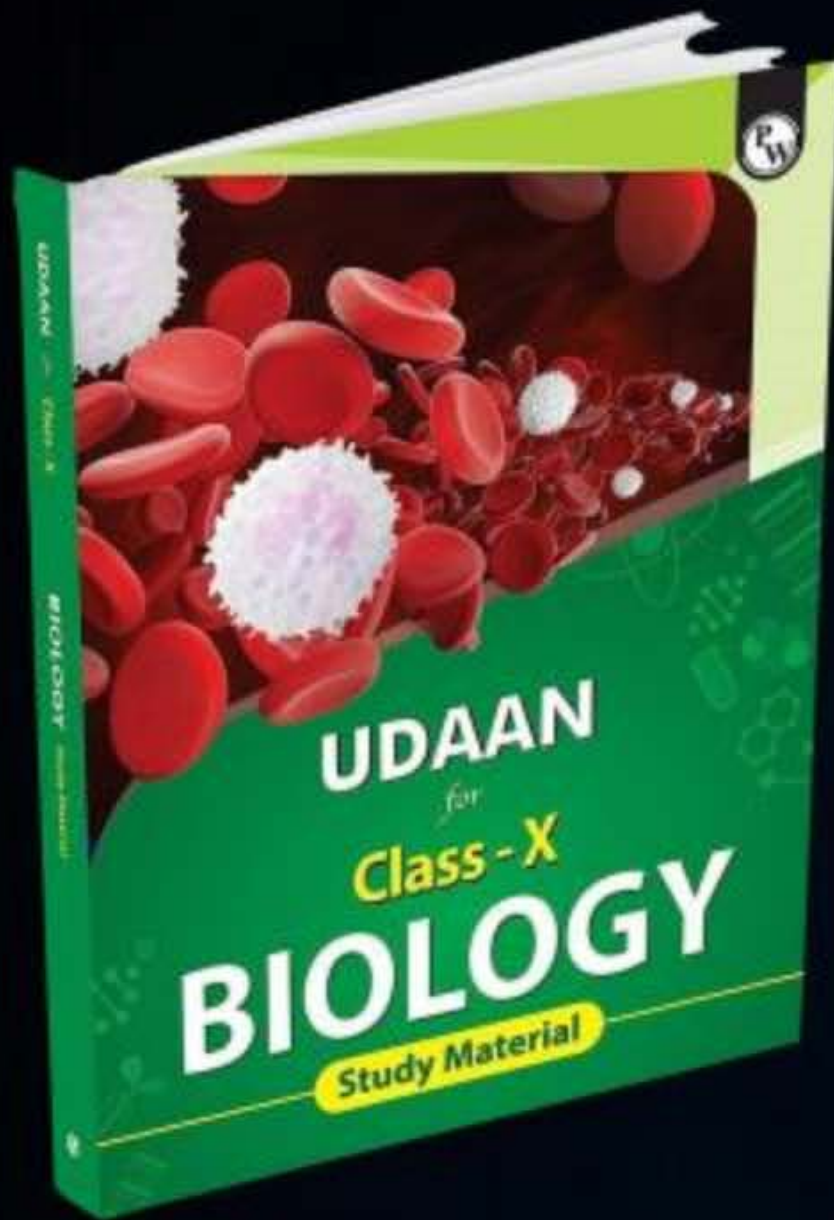


Human Brain



→ Average Weight → 1100 - 1400 gm .





Homework



FROM PW MODULE
(Udaan - CLASS 10)

PAGE : 102 — Q-33, Q-34



Question of the Day



How many brain does an octopus have ?



Joke/Meme of the Day



when someone say nerves and blood vessels are same



**Band Karo Main Haath Jod Ke
Aapse Gujarish Karta Hun**

Mon (10th June) → Sun (16th June).



THANK
YOU

