



BIOLOGY • CLASS 11

CHAPTER 18

Neural Control and Coordination

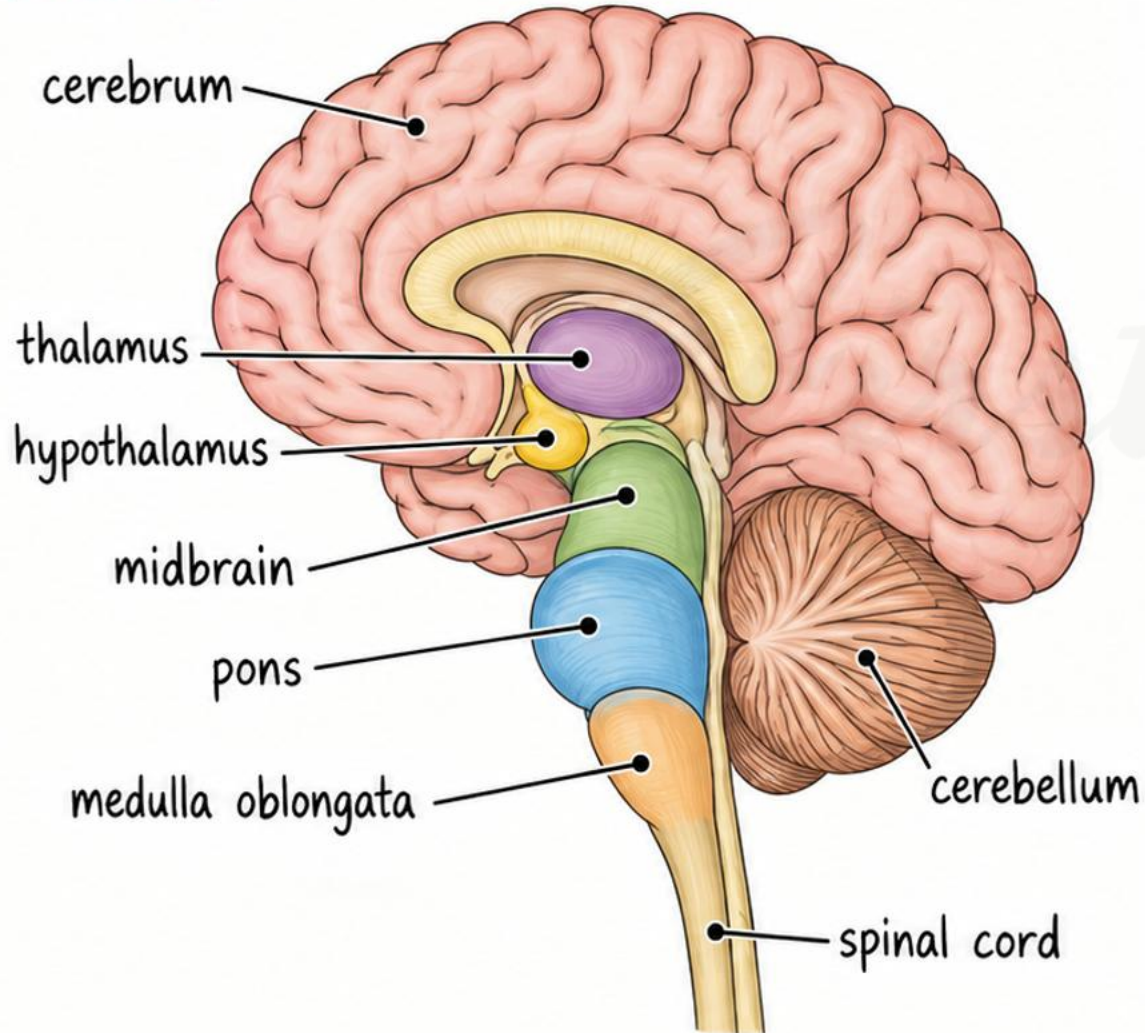


NCERT SOLUTIONS

EXERCISE SOLUTION: QUESTION 1

1. Briefly describe the structure of the brain.

Answer:



Forebrain: the cerebrum has two cerebral hemispheres joined by the corpus callosum; its cortex is grey matter and deeper tissue is white matter. The thalamus relays sensory and motor signals. The hypothalamus regulates temperature, hunger, thirst and endocrine functions.

Midbrain: lies between the forebrain and pons; its corpora quadrigemina help coordinate visual and auditory reflexes.

Hindbrain: consists of pons, cerebellum and medulla. The cerebellum coordinates posture and movement; the medulla controls vital involuntary functions.

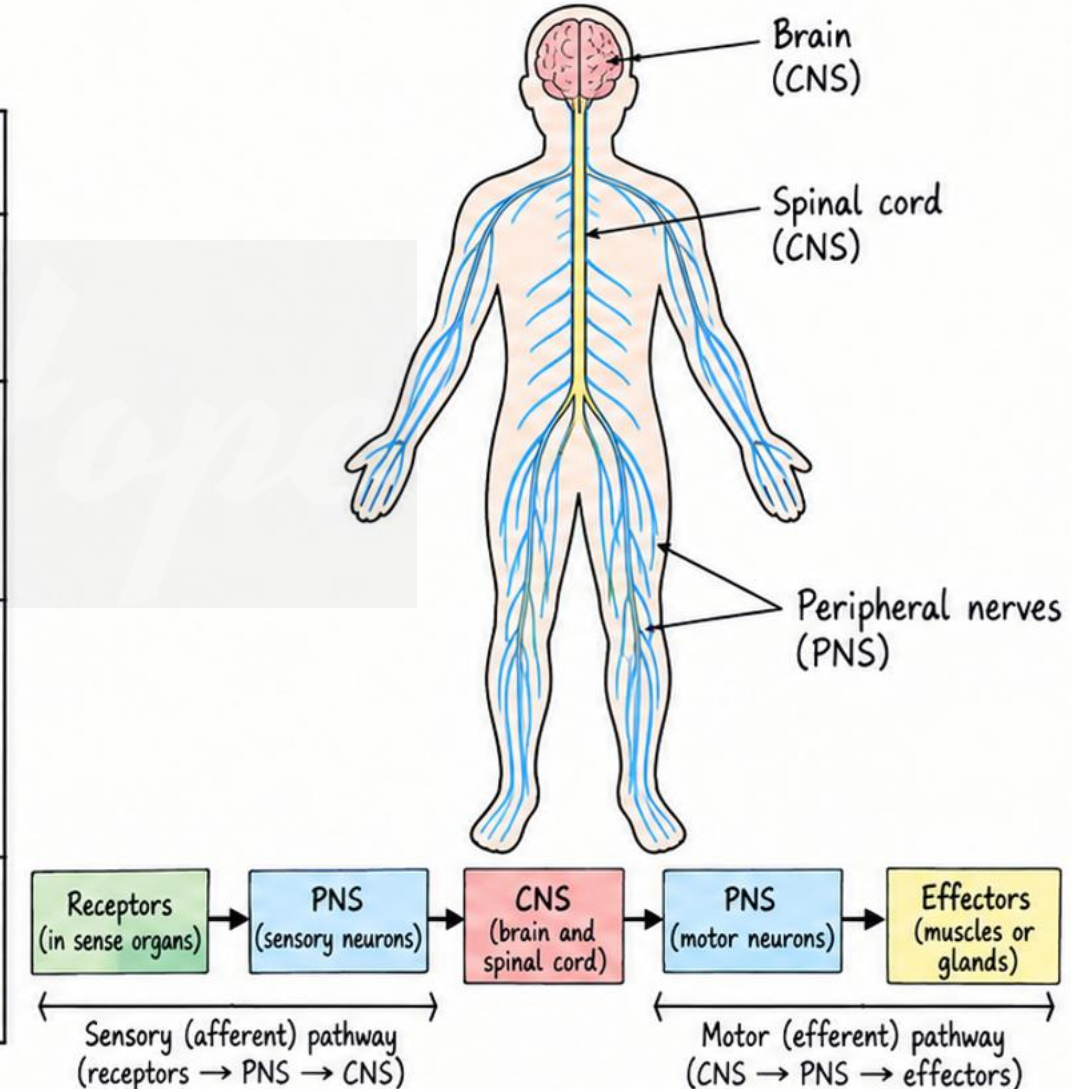
The brain is protected by the cranium, three meninges and cerebrospinal fluid.

EXERCISE SOLUTION: QUESTION 2 (A)

2 (A). Compare the Central Neural System (CNS) and Peripheral Neural System (PNS).

Answer:

Feature	CNS	PNS
Parts	brain and spinal cord	cranial nerves, spinal nerves and associated ganglia
Position	main processing centre, protected within cranium and vertebral column	nerves outside the CNS connecting it to the body
Main role	receives, integrates and coordinates information	carries sensory impulses to the CNS and motor commands from the CNS
Divisions	brain and spinal cord	somatic neural system and autonomic neural system.

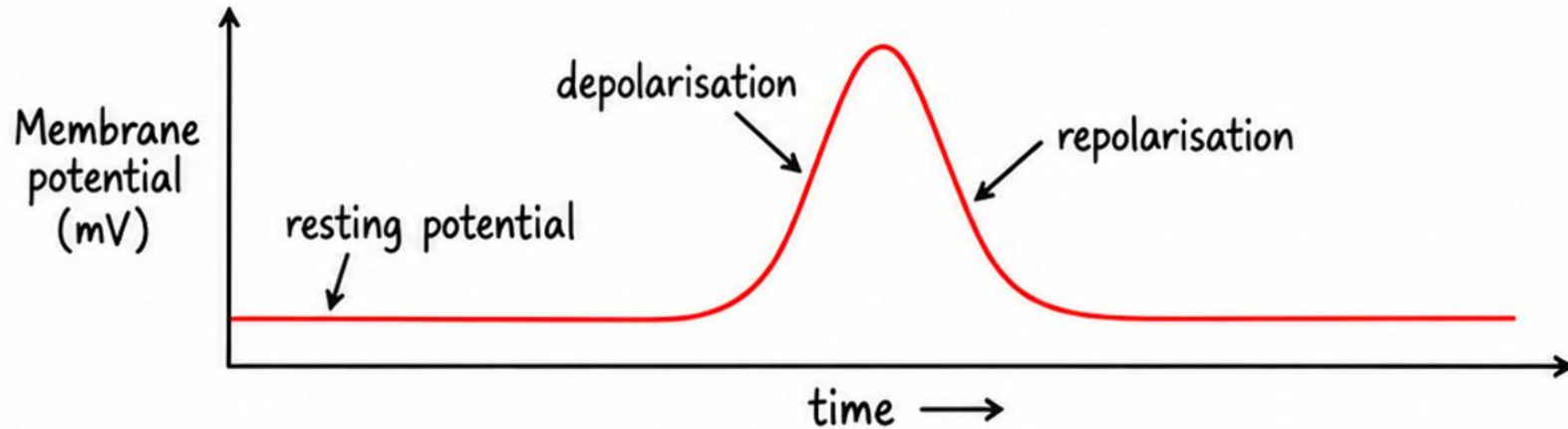


EXERCISE SOLUTION: QUESTION 2 (B)

Q. Compare resting potential and action potential.

Answer:

Feature	Resting Potential	Action Potential
State	Resting, unstimulated membrane.	Brief electrical change during excitation.
Charge	Inside negative relative to outside, about -70 mV.	Membrane depolarises and inside becomes positive, followed by repolarisation.
Main ion movement	K^+ leak plus Na^+/K^+ pump maintain gradients.	Rapid Na^+ influx causes depolarisation, then K^+ efflux causes repolarisation.
Spread	Does not propagate.	Propagates along the axon without decreasing in size.





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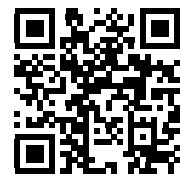


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