

# Edexcel (B) Biology A-level

## 9.4 - Structure and function of the mammalian nervous system

### Flashcards

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Name the two main divisions of the nervous system.



Name the two main divisions of the nervous system.

Central nervous system.

Peripheral nervous system (all neurons that are not part of the CNS).



Describe the central nervous system.



Describe the central nervous system.

Comprised of brain & spinal cord.

Specialised system of nerve cells processes stimuli & propagates impulses.



Name the two main divisions of the peripheral nervous system.



Name the two main divisions of the peripheral nervous system.

Voluntary (under conscious control).

Autonomic (not under conscious control).



Name the two main divisions of the autonomic nervous system.





Name the two main divisions of the autonomic nervous system.

Sympathetic

Parasympathetic

Act antagonistically to regulate response of effectors e.g. heart rate



Describe the sympathetic nervous system.



Describe the sympathetic nervous system.

- Usually stimulates effectors (coordinates fight-or-flight response).
- Neurotransmitter noradrenaline.
- Ganglia are located near CNS.



Describe the parasympathetic nervous system.



Describe the parasympathetic nervous system.

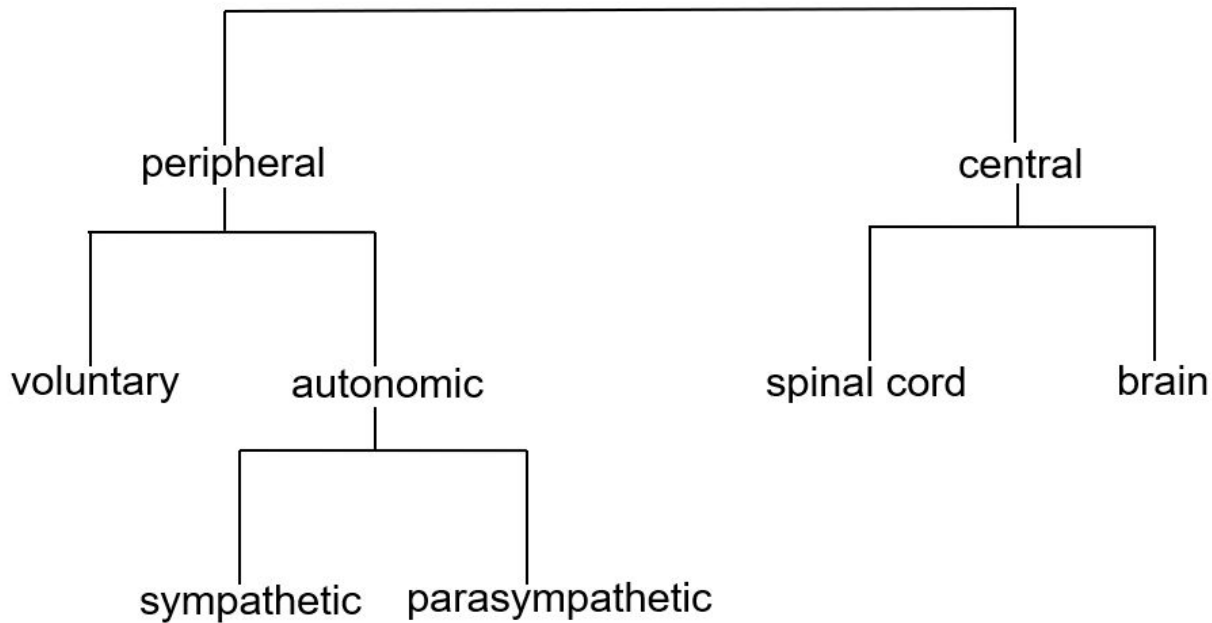
- Usually inhibits effectors (coordinates rest/digest response).
- Neurotransmitter acetylcholine.
- Ganglia located far from CNS.



Outline the gross structure of the mammalian nervous system.



Outline the gross structure of the mammalian nervous system.



Describe the structure of the spinal cord.





## Describe the structure of the spinal cord.

Cylindrical bundle of nerve fibres runs from brain stem to lower back. Surrounded by spinal vertebrae.

Consists of nerve tissue (neurons, glia, blood vessels). 31 pairs of spinal nerves.

Gray matter: H-shaped region contains neurons  
White matter: myelinated axons.



Name the groups of spinal nerves.



Name the groups of spinal nerves.

**Cervical spinal nerves** = signals to back of head.

**Thoracic spinal nerves** = signals to chest & back muscles.

**Lumbar spinal nerves** = signals to lower abdomen and back.

**Sacral spinal nerves** = signals to thighs & lower legs.

**Coccygeal nerve** transmits from skin on lower back.

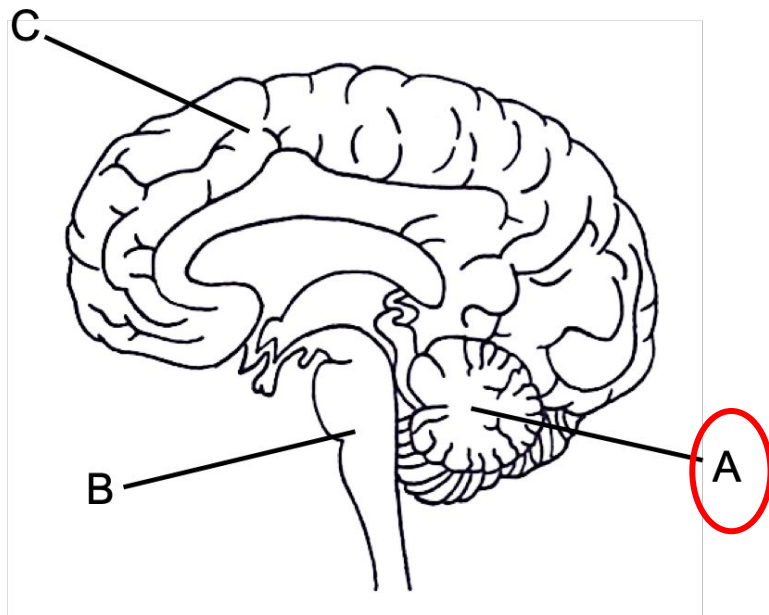


Identify the location and function of the cerebellum.



## Identify the location and function of the cerebellum.

- Controls execution (not initiation) of **movement** e.g. timing, balance, coordination, posture.
- Possible role in cognition e.g. attention & language.

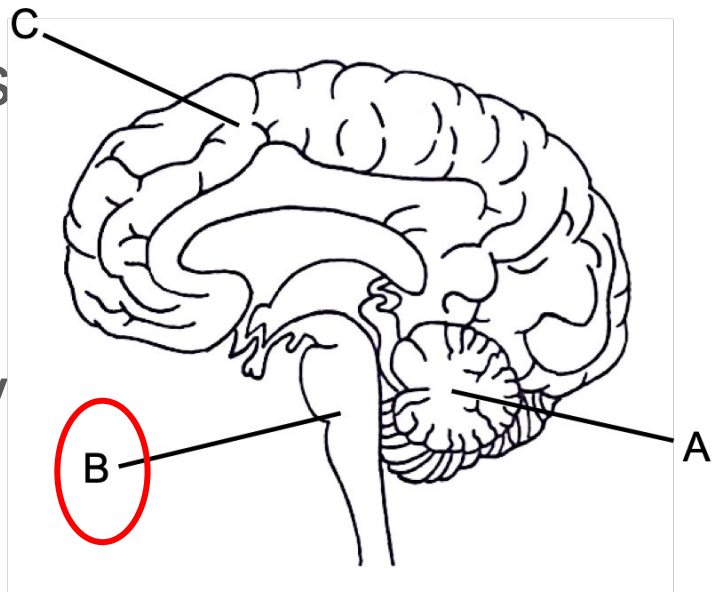


Identify the location and function of the medulla oblongata.



Identify the location and function of the medulla oblongata.

Controls a range of autonomous functions, including breathing and heart rate (location of cardioacceleratory/ deceleratory centres).



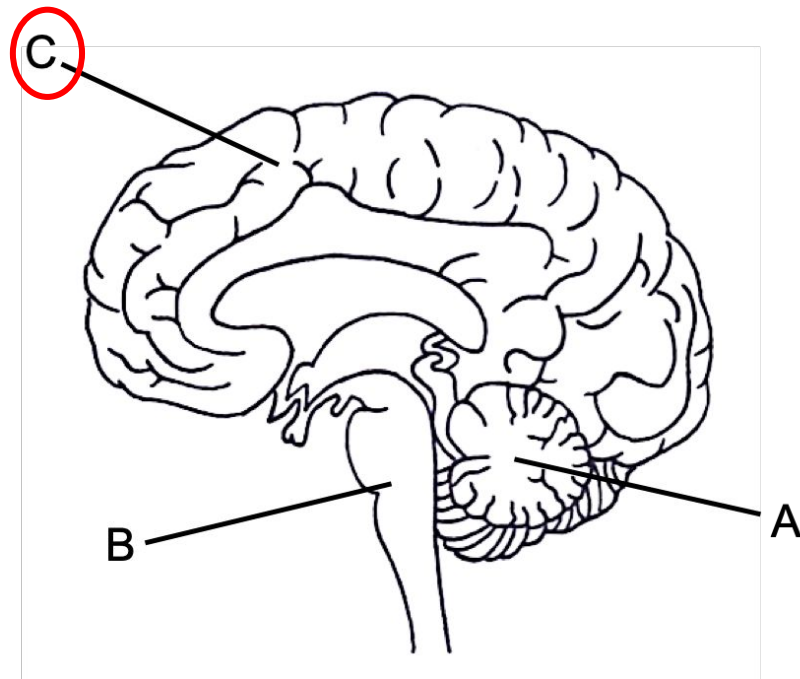
Identify the location and function of the cerebrum.





Identify the location and function of the cerebrum.

Uppermost part of the brain is organised into lobes which control voluntary functions e.g. initiating movement, speech, thought.



Identify the location and function of the hypothalamus.



Identify the location and function of the hypothalamus.

Includes anterior pituitary gland (secretes metabolic & reproductive hormones).

Involved in thermo & osmoregulation.

