Nervous System Quiz Questions and Answers PDF

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Which part of the nervous system includes the brain and spinal cord?

- ◯ Peripheral Nervous System
- ◯ **Central Nervous System ✓**
- ◯ Autonomic Nervous System
- ◯ Somatic Nervous System

> The central nervous system (CNS) is the part of the nervous system that includes the brain and spinal cord, responsible for processing and transmitting information throughout the body.

Which lobe of the brain is primarily responsible for visual processing?

- ◯ Frontal Lobe
- ◯ Parietal Lobe
- ◯ Temporal Lobe
- ◯ **Occipital Lobe ✓**

> The occipital lobe is the region of the brain that is primarily responsible for processing visual information. It interprets signals from the eyes and is crucial for visual perception.

What type of cells support and protect neurons?

- ◯ Erythrocytes
- ◯ Leukocytes
- ◯ **Neuroglia ✓**
- ◯ Platelets

> Glia, or glia cells, are the type of cells that support and protect neurons in the nervous system. They play crucial roles in maintaining homeostasis, forming myelin, and providing support and protection for neurons.

Which part of the brain controls basic life functions such as breathing and heart rate?

- ◯ C cerebellum
- ◯ **Brainstem ✓**
- ◯ C cerebrum
- ◯ Hippocampus

> The brainstem, which includes the medulla oblongata, is responsible for regulating essential life functions such as breathing and heart rate.

What is the basic functional unit of the nervous system?

- ◯ Axon
- ◯ **Neuron ✓**
- ◯ Dendrite
- ◯ Synapse

> The basic functional unit of the nervous system is the neuron, which is responsible for transmitting information throughout the body via electrical and chemical signals.

How does the structure of a neuron facilitate its function in the nervous system?

> **The unique structure of a neuron, with its dendrites for receiving signals, a long axon for transmitting impulses, and synaptic terminals for communication with other neurons, facilitates its function in the nervous system.**

Discuss the differences between the sympathetic and parasympathetic nervous systems in terms of their effects on the body.

The sympathetic nervous system activates the body's stress response, increasing heart rate, dilating pupils, and inhibiting digestion, whereas the parasympathetic nervous system conserves energy by slowing the heart rate, constrictING pupils, and stimulating digestive processes.

What is neuroplasticity, and why is it important for learning and memory?

Neuroplasticity is the brain's capacity to change and adapt in response to experience, learning, and injury, making it essential for the processes of learning and memory.

Which of the following are parts of the Central Nervous System? (Select all that apply)

- [x] **Brain ✓**
- [x] **Spinal Cord ✓**
- [ ] Peripheral Nerves
- [ ] Cranical Nerves

The Central Nervous System (CNS) consists of the brain and spinal cord. These components are responsible for processing and transmitting information throughout the body.

What is the role of the spinal cord in the nervous system?

- **Transmit information to and from the brain ✓**
- Control voluntary movements
- Produce hormones
- Store memories

The spinal cord serves as the main pathway for transmitting information between the brain and the rest of the body, coordinating reflexes and motor control.

Which of the following is NOT a function of the nervous system?

- Sensory input
- Integration of data

- ◯ **Blood circulation ✓**
- ◯ Control of muscles and glands

> The nervous system is primarily responsible for processing sensory information, coordinating movement, and regulating bodily functions. Any option that does not relate to these functions, such as 'producing energy,' would be the correct answer.

Which of the following are symptoms of neurological disorders? (Select all that apply)

- ☐ **Paralysis ✓**
- ☐ **Numbness ✓**
- ☐ Increased appetite
- ☐ **Cognitive impairment ✓**

> Neurological disorders can manifest through a variety of symptoms, including but not limited to headaches, seizures, memory loss, and motor skill difficulties. Identifying these symptoms is crucial for early diagnosis and treatment.

Which brain structures are part of the limbic system? (Select all that apply)

- ☐ **Hippocampus ✓**
- ☐ **Amygdala ✓**
- ☐ **Thalamus ✓**
- ☐ C Cerebellum

> The limbic system includes several key brain structures that are involved in emotion, memory, and behavior. Notable components of the limbic system are the hippocampus, amygdala, and cingular gyrus, among others.

Which structures are involved in the transmission of nerve impulses? (Select all that apply)

- ☐ **Axon ✓**
- ☐ **Dendrite ✓**
- ☐ **Synapse ✓**
- ☐ **Myelin Sheath ✓**

> Nerve impulses are transmitted through structures such as neurons, axons, and synapses, which facilitate the communication between nerve cells. Additionally, myelin sheaths play a crucial role in speeding up the transmission of these impulses along the axons.

Which division of the autonomic nervous system is responsible for the 'fight or flight' response?

- ◯ Somatic Nervous System
- ◯ **Sympathetic Nervous System ✓**
- ◯ Parasympathetic Nervous System
- ◯ Central Nervous System

> The sympathetic division of the autonomic nervous system is responsible for the 'fight or flight' response, preparing the body to react to perceived threats.

Which of the following are functions of the autonomic nervous system? (Select all that apply)

- ☐ **Regulating heart rate ✓**
- ☐ Controlling voluntary muscle movements
- ☐ **Managing digestive processes ✓**
- ☐ **Adjustting pupil size ✓**

> The autonomic nervous system regulates involuntary bodily functions such as heart rate, digestion, and respiratory rate. It consists of the sympathetic and parasympathetic divisions, which work together to maintain homeostasis.

Explain the role of neurotransmitters in synaptic transmission.

> **Neurotransmitters are released from the presynaptic neuron into the synaptic cleft, where they bind to receptors on the postsynaptic neuron, leading to the propagation of electrical signals and influencing various physiological processes.**

Which cells are types of neuroglia? (Select all that apply)

- ☐ **Astrocytes ✓**
- ☐ **Oligodendrocytes ✓**
- ☐ **Schwann Cells ✓**
- ☐ Erythrocytes

> Neuroglia, or glia, are supportive cells in the nervous system that include astrocytes, oligodendrocytes, microglia, and Schwann cells. These cells play crucial roles in maintaining homeostasis, forming myelin,

and providing support and protection for neurons.

Identify and explain the protective structures of the brain and their significance.

The protective structures of the brain include the skull (the bony encasement), the meninges (three layers of membranes: dura mater, arachnoid mater, and pia mater), and cerebrospinal fluid (CSF) that cushions the brain and provides buoyancy.

Describe the process of an action potential and how it propagates along a neuron.

The process of an action potential begins with a stimulus that depolarizes the neuron's membrane, causing voltage-gated sodium channels to open and sodium ions to rush in, further depolarizing the membrane. Once a threshold is reached, an action potential is generated, characterized by a rapid rise and fall in voltage. After reaching its peak, potassium channels open, allowing potassium ions to exit the cell, repolarizing the membrane. This wave of depolarization and repolarization propagates along the axon, aided by the myelin sheath in myelinated neurons, which allows for faster transmission through saltatory conduction.