

9. Using the key choices, identify the terms defined in the following statements. Place the correct term or letter response in the answer blanks.

Key Choices

- | | | |
|---------------------|----------------------|--------------------------|
| A. Action potential | D. Potassium ions | G. Sodium ions |
| B. Depolarization | E. Refractory period | H. Sodium-potassium pump |
| C. Polarized | F. Repolarization | |

- | | |
|-------|---|
| _____ | 1. Period of repolarization of the neuron during which it cannot respond to a second stimulus |
| _____ | 2. State in which the resting potential is reversed as sodium ions rush into the neuron |
| _____ | 3. Electrical condition of the plasma membrane of a resting neuron |
| _____ | 4. Period during which potassium ions diffuse out of the neuron |
| _____ | 5. Transmission of the depolarization wave along the neuron's membrane |
| _____ | 6. The chief positive intracellular ion in a resting neuron |
| _____ | 7. Process by which ATP is used to move sodium ions out of the cell and potassium ions back into the cell; completely restores the resting conditions of the neuron |

10. Using the key choices, identify the types of reflexes involved in each of the following situations.

Key Choices

- | | |
|-----------------------|---|
| A. Somatic reflex(es) | B. Autonomic reflex(es) |
| _____ | 1. Patellar (knee-jerk) reflex |
| _____ | 2. Pupillary light reflex |
| _____ | 3. Effectors are skeletal muscles |
| _____ | 4. Effectors are smooth muscle and glands |
| _____ | 5. Flexor reflex |
| _____ | 6. Regulation of blood pressure |
| _____ | 7. Salivary reflex |

12. Circle the term that does not belong in each of the following groupings.

- | | | | |
|--------------------------|------------------------|------------------|----------------------|
| 1. Astrocytes | Neurons | Oligodendrocytes | Microglia |
| 2. K^+ enters the cell | K^+ leaves the cell | Repolarization | Refractory period |
| 3. Nodes of Ranvier | Myelin sheath | Unmyelinated | Saltatory conduction |
| 4. Predictable response | Voluntary act | Involuntary act | Reflex |
| 5. Oligodendrocytes | Schwann cells | Myelin | Microglia |
| 6. Cutaneous receptors | Free dendritic endings | Stretch | Pain and touch |
| 7. Cell interior | High Na^+ | Low Na^+ | High K^+ |

CENTRAL NERVOUS SYSTEM

Brain

13. Complete the following statements by inserting your answers in the answer blanks.

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|-------|----|--|
| _____ | 1. | The largest part of the human brain is the (paired) <u>(1)</u> . The other major subdivisions of the brain are the <u>(2)</u> and the <u>(3)</u> . The cavities found in the brain are called <u>(4)</u> . They contain <u>(5)</u> . |
| _____ | 2. | |
| _____ | 3. | |
| _____ | 4. | |
| _____ | 5. | |

14. Circle the terms indicating structures that are *not* part of the brain stem.

- | | | |
|----------------------|------------|--------------|
| Cerebral hemispheres | Midbrain | Medulla |
| Pons | Cerebellum | Diencephalon |

15. Complete the following statements by inserting your answers in the answer blanks.

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|-------|----|--|
| _____ | 1. | A <u>(1)</u> is an elevated ridge of cerebral cortex tissue. The convolutions seen in the cerebrum are important because they increase the <u>(2)</u> . Gray matter is composed of <u>(3)</u> . White matter is composed of <u>(4)</u> , which provide for communication between different parts of the brain as well as with lower CNS centers. The lentiform nucleus, the caudate, and other nuclei are collectively called the <u>(5)</u> . |
| _____ | 2. | |
| _____ | 3. | |
| _____ | 4. | |
| _____ | 5. | |

18. Referring to the brain areas listed in Exercise 17, match the appropriate brain structures with the following descriptions. Insert the correct terms in the answer blanks.

- _____ 1. Site of regulation of water balance and body temperature
- _____ 2. Contains reflex centers involved in regulating respiratory rhythm in conjunction with lower brain-stem centers
- _____ 3. Responsible for the regulation of posture and coordination of skeletal muscle movements
- _____ 4. Important relay station for afferent fibers traveling to the sensory cortex for interpretation
- _____ 5. Contains autonomic centers, which regulate blood pressure and respiratory rhythm, as well as coughing and sneezing centers
- _____ 6. Large fiber tract connecting the cerebral hemispheres
- _____ 7. Connects the third and fourth ventricles
- _____ 8. Encloses the third ventricle
- _____ 9. Forms the cerebrospinal fluid
- _____ 10. Midbrain area that is largely fiber tracts; bulges anteriorly
- _____ 11. Part of the limbic system; contains centers for many drives (rage, pleasure, hunger, sex, etc.)

19. Some of the following brain structures consist of gray matter; others are white matter. Write G (for gray) or W (for white) as appropriate.

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|-------------------------------|------------------------------|
| _____ 1. Cortex of cerebellum | _____ 5. Pyramids |
| _____ 2. Basal nuclei | _____ 6. Thalamic nuclei |
| _____ 3. Anterior commissure | _____ 7. Cerebellar peduncle |
| _____ 4. Corpus callosum | |