Multiple Choice

1. \_\_\_\_\_\_\_ are only one of the cell types found in the nervous system.
2. Soma
3. Neurons
4. Mitochondria
5. Myelin
6. Your biopsychology professor keeps correcting you to remind you to refer to single cells of the nervous system as \_\_\_\_\_\_\_\_\_\_\_\_\_ and not as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. neurons; nerves
8. nerve cells; nerves
9. ganglion; nerves
10. nerves; neurons
11. The cells supporting the neurons of the brain are the \_\_\_\_\_\_\_\_
12. neurons.
13. glia.
14. neurofilaments.
15. Schwann cells.
16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ have a branched structure and receive stimulation from other neurons.
17. Dendrites
18. Axons
19. Glial cells
20. Soma
21. The dendrites of a neuron\_\_\_\_\_\_\_\_
22. have expanded their surface area by developing dendritic spines.
23. house the ribosomes of the cell.
24. transmit neural impulses to the glia.
25. release messages to neighboring neurons.
26. The part of a neuron that contains the nucleus is called the \_\_\_\_\_\_\_\_
27. axon.
28. soma.
29. dendrite.
30. mitochondrion.
31. The most prominent part of the neuron is the \_\_\_\_\_\_\_\_
32. soma.
33. axon.
34. terminal.
35. dendritic process.
36. The part of a neuron that sends information to another neuron is the \_\_\_\_\_\_\_\_
37. soma.
38. axon.
39. dendrite.
40. synapse.
41. The axon of a neuron \_\_\_\_\_\_\_\_
42. ends in swellings known as terminal branches.
43. receives messages from other neurons.
44. transmits neural impulses to the soma.
45. contains the cell’s nucleus.
46. Sensory neurons \_\_\_\_\_\_\_\_
47. control muscles and produce movement.
48. send messages away from the brain toward the periphery.
49. gather information from the environment and convey it into the central nervous system.
50. produce axons covered with myelin.
51. In \_\_\_\_\_\_\_\_\_\_ neurons the axon and the dendrites branch out from the soma in multiple directions.
52. multi-fibered
53. unipolar
54. bipolar
55. multipolar

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| 12. A \_\_\_\_\_ neuron has an axon and the dendritic processes exiting from opposite ends of the soma.   1. motor 2. unipolar 3. bipolar 4. multipolar | |
| 13. The soma of a \_\_\_\_\_ neuron gives rise to a short projection that divides into two branches.   1. uni-fibered 2. unipolar 3. bipolar 4. multipolar | |
| 14. A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ would be transmitting impulses between a sensory neuron with a motor neuron.   1. glial neuron 2. projection 3. interneuron 4. multipolar | |
| 15. Negotiations can be said to involve an “intermediary” who communicates between two parties. The “intermediary” between a sensory neuron and a motor neuron is a \_\_\_\_\_\_\_\_   1. synapse. 2. projection neuron. 3. glial cell. 4. interneuron. | |
| 16. Most neurons in the brain are \_\_\_\_\_\_\_\_.   1. motor neurons 2. unipolar neurons 3. bipolar neurons 4. multipolar neurons | |
| 17. A disease that destroys myelin is \_\_\_\_\_\_\_\_   1. Alzheimer’s disease. 2. multiple sclerosis. 3. Parkinson’s disease. 4. neuropathy. | |
| 18. Loss of myelin from neurons would be expected to \_\_\_\_\_\_\_\_   1. speed up nerve cell electrical conduction. 2. greatly impair neuronal electrical conduction. 3. increase the amplitude of the action potential. 4. prevent the removal of dead nerve cells in the brain. | |
| 19. Who first proposed that individual neurons were not in direct contact with each other?   1. Golgi 2. Loewi 3. Cajal 4. Ranvier | |
| 20. The midbrain includes \_\_\_\_\_\_\_\_   * 1. the superior colliculi   2. the tegmentum   3. the tectum   4. all of the above. | |
| 21. Damage to the medulla can produce problems in \_\_\_\_\_\_\_\_   1. regulation of respiration. 2. regulation of sleep. 3. filtering of sensory information. 4. motor coordination. | |
| 22. Immediately\_\_\_\_\_\_\_ to the thalamus is the \_\_\_\_\_\_\_\_\_\_\_\_.   * 1. dorsal; pituitary gland   2. ventral; pituitary gland   3. dorsal; hypothalamus   4. ventral; hypothalamus | |
| 23. Which of the cranial nerves extends to the body’s organs?   * 1. optic   2. auditory   3. olfactory   4. vagus | |
| 24. The sites of protein synthesis in neurons are called \_\_\_\_\_\_\_\_   1. granule. 2. ribosomes. 3. liposomes. 4. Golgi bodies. | |
| 25. What do you predict would happen if a purple dye made of a large protein molecule was injected into a rat's bloodstream?   1. The brain would be stained purple 2. The spinal cord would be stained purple. 3. All tissues except brain and spinal cord would be stained purple. 4. None of the body tissues would be stained purple. | |
| 26. The cells that produce myelin in the Peripheral Nervous System (PNS) are called \_\_\_\_\_\_\_\_   1. Astrocytes. 2. Oligodendrocytes 3. Schwann cells. 4. Microglia. | |
| 27. Being given a "pat on the back" refers to being hit on the body’s \_\_\_\_\_\_\_\_\_\_\_\_ surface.   1. dorsal 2. ventral 3. rostral 4. anterior | |
| 28. The temporal lobes are \_\_\_\_\_\_\_\_\_\_\_\_ to the thalamus.   1. dorsal 2. rostral 3. medial 4. lateral | |
| 29. A cut through the brain that divides the two hemispheres (a cut "between the eyes") is called a \_\_\_\_\_\_\_\_\_\_\_\_ section.   1. sagittal 2. coronal 3. horizontal 4. superior | |
| 30. The two main parts of the peripheral nervous system are the   1. sympathetic and parasympathetic. 2. brain and spinal cord. 3. somatic and autonomic 4. somatic and voluntary. | |
| 31. Which structure is part of the temporal lobes?   * 1. Cerebellum   2. Hippocampus   3. Tectum   4. Tegmentum | |
| 1. The visual information is processed in the \_\_\_\_\_\_\_\_ lobe.    * + - 1. parietal          2. occipital          3. olfactory          4. frontal | |
| 1. A primary function of the thalamus is to \_\_\_\_\_\_\_\_ 2. regulate blood pressure. 3. control the pituitary gland. 4. relay information to the cerebral cortex. 5. initiate hunger, | |
| 1. The basal ganglia are important for \_\_\_\_\_\_\_\_ 2. processing visual information. 3. processing auditory information. 4. directing attention. 5. regulating movement. | |
| 1. You’ve just eaten a huge meal consisting of a three meat barbecue plate (spareribs, brisket, polish sausage) with sides of beans, French fries and corn on the cob, cornbread with butter, 2 quarts of sweet tea, 2 slices of apple pie, and a wafer-thin mint. Your \_\_\_\_\_\_\_\_\_\_ is likely highly activated at this time. 2. somatic nervous system 3. sympathetic nervous system 4. parasympathetic nervous system 5. basal ganglia | |
| 1. You’ve just been mugged and punched. Your \_\_\_\_\_\_\_\_\_\_ is likely highly activated at this time 2. somatic nervous system 3. sympathetic nervous system 4. parasympathetic nervous system 5. basal ganglia | |
| 1. The reticular formation is a network of neurons in the brain that \_\_\_\_\_\_\_\_ 2. controls respiration. 3. regulates blood pressure. 4. processes odor information. 5. can cause you to pay attention to a new sound. | |
| 1. The \_\_\_\_\_\_\_\_ initiates the process of propagating neural messages away from the soma toward a target such as another neuron. 2. Golgi apparatus 3. mitochondria 4. dendrite 5. axon hillock | |
| 1. Cabled axons of multiple neurons within the central nervous system are called \_\_\_\_\_\_\_\_ 2. nerves. 3. tracts. 4. projections. 5. commissures. | |
| 1. When a dominant gene is paired with a recessive gene, the gene pair is said to be \_\_\_\_\_\_\_\_ for that trait. 2. homozygous 3. phenotypic 4. heterozygous 5. polygenic | |
| 1. As a group, the 12 cranial nerves differ from spinal nerves in that they \_\_\_\_\_\_\_\_ 2. only project to the head, neck and shoulders. 3. exit directly from the brain. 4. carry only sensory information. 5. carry only motor commands. | |
| 1. Each spinal nerve projects to a specific patch of skin on the body surface called a \_\_\_\_\_\_\_\_ 2. dermatome. 3. somatotome. 4. receptive field. 5. target field. | |
| 1. The lowest level of the brain is called the \_\_\_\_\_\_\_\_ 2. telencephalon. 3. myelencephalon. 4. metencephalon. 5. mesencephalon. | |
| 1. The highest level of the brain is called the \_\_\_\_\_\_\_\_. 2. mesencephalon 3. diencephalon 4. telencephalon 5. myelencephalon | |
| 1. Parkinson’s disease affects the function of the \_\_\_\_\_\_\_\_. 2. cerebellum. 3. limbic system. 4. basal ganglia. 5. reticular formation. | |
| 1. Epileptics experiencing intense emotions instead of convulsions may be having a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ seizure. 2. limbic system 3. basal ganglia 4. reticular formation 5. cerebellar | |
| 1. The limbic system is present in \_\_\_\_\_\_\_\_ 2. fish. 3. reptiles. 4. mammals. 5. worms. | |
| 48. The bulges on the surface of the cerebral cortex are referred to as \_\_\_\_\_\_\_\_   1. sulci. 2. gyri. 3. lobes. 4. tuberosities. | |
| 49. The misfortune of Phineas Gage helped illuminate the function of the \_\_\_\_\_\_\_\_   * 1. parietal lobe.   2. temporal lobe   3. frontal lobe.   4. occipital lobe. | |
| 50. One of the specialized functions of the left cerebral hemisphere is \_\_\_\_\_\_\_\_   1. mathematics. 2. musical ability. 3. motor skills. 4. language. | |
| 1. The body’s tendency to maintain a consistent internal environment is called \_\_\_\_\_\_\_\_ 2. homeostasis. 3. metastasis. 4. allostasis. 5. resilience. | |
| 1. The body’s management of the varying energy demands across organs in response to stress is called \_\_\_\_\_\_\_\_ 2. homeostasis. 3. metastasis. 4. allostasis. 5. resilience. | |

1. The work of Ader and Cohen established \_\_\_\_\_\_\_\_
   1. that the nervous and immune systems communicate cooperatively.
   2. the function of the limbic system.
   3. the effects of split-brain surgery.
   4. the role of the sympathetic nervous system in digestion.
2. The immune response within the central nervous system (CNS) is \_\_\_\_\_\_\_\_
3. more intense than the immune response in the peripheral nervous system (PNS).
4. slower than the immune response in the peripheral nervous system (PNS) but just as strong.
5. weaker than the immune response in the peripheral nervous system (PNS).
6. more selective than the immune response in the peripheral nervous system (PNS).
7. The acquired immune system, or adaptive immune system, was identified by \_\_\_\_\_\_\_\_
8. Neal Miller.
9. Ader and Cohen.
10. Bruce McEwen.
11. Edward Jenner.
12. The choroid plexus renews the total volume of cerebrospinal fluid (CSF) \_\_\_\_\_\_\_\_\_\_\_ per day.
13. once
14. twice.
15. ten times
16. three times
17. Compared with other mammals, humans have a \_\_\_\_\_\_\_\_\_\_\_ cerebral cortex.
18. disproportionately large
19. disproportionately small
20. proportionately sized
21. slightly larger
22. The \_\_\_\_\_\_\_\_\_\_\_ separates the primary motor cortex in the frontal lobe from the primary somatosensory cortexin the parietal lobe
23. central fissure
24. central gyrus
25. insula
26. basal ganglia
27. The human brain’s cerebral cortex is divided into how many distinct cellular layers?
28. four
29. five
30. six
31. seven
32. Parkinson’s diseaseresults from suboptimal activation of the basal ganglia due to an inadequate supply of \_\_\_\_\_\_\_\_.
33. cerebrospinal fluid (CSF).
34. glucocorticoids.
35. adrenaline.
36. dopamine.
37. The insertion of fluorescent protein genes found in jellyfish and coral into mouse genes is the basis of \_\_\_\_\_\_\_\_
38. psychoneuroimmunology.
39. biofeedback.
40. Brainbow transgenic mice.
41. allostasis.
42. Which of the following would activate the adaptive immune system?
43. Glucocorticoids
44. Antigens
45. Adrenaline
46. Allostatic overload
47. If stress continues for too long the result can be described as
48. allostatic overload.
49. homeostasis.
50. hypertension.
51. hyperthyroidism.
52. The \_\_\_\_\_\_\_\_\_\_\_ provides buoyancy and physical space that acts as a buffer when the brain is jolted as a result of sudden movement.
53. dura mater.
54. cerebrospinal fluid (CSF)
55. pia mater
56. arachnoid mater
57. A person with a split-brain surgery has objects presented visually in front of them. What might be expected?
58. They could respond verbally only if the left hemisphere was activated by the right visual field.
59. They could respond verbally only if the left hemisphere was activated by the left visual field.
60. They could respond verbally only if the right hemisphere was activated by the left visual field.
61. They could respond verbally only if the right hemisphere was activated by the right visual field.
62. You have a very clear memory for what you were wearing on the day you proposed marriage to your significant other. Why might this be the case?
63. Reduced serotonin activity in the reticular formation.
64. Seizure activity in the basal ganglia.
65. Increased motor inputs to the cerebellum.
66. Stress hormone activation of the hippocampus.
67. Which of the following structures is the least critical for maintaining basic autonomic functions?
    1. Forebrain
    2. Cerebellum
    3. Medulla oblongata
    4. Hypothalamus
68. Which of the following structures is the most critical for maintaining basic autonomic functions?
69. Forebrain
70. Cerebellum
71. Medulla oblongata
72. Hypothalamus
73. Which of the following conditions should result in the least amount of neurogenesis in rats?
74. Socially housed rats allowed to run.
75. Socially housed rats not allowed to run.
76. Individually housed rats allowed to run.
77. Individually housed rats not allowed to run.
78. Which of the following conditions should result in the greatest amount of neurogenesis in rats?
79. Socially housed rats allowed to run.
80. Socially housed rats not allowed to run.
81. Individually housed rats allowed to run.
82. Individually housed rats not allowed to run.
83. After damage, neurons in the central nervous system (CNS) do not regenerate because \_\_\_\_\_\_\_\_
84. microglia do not readily clear away debris from the damage.
85. of the presence of inhibitory proteins
86. astrocytes promote the formation of scar tissue.
87. All of the above options are correct.
88. Isotropic fractionation was used to answer what question about the brain?
89. The amount of myelin loss in Multiple Sclerosis (MS).
90. Relative overall number of glial cells versus neurons.
91. The speed of a nerve signal.
92. The rate of cerebrospinal fluid (CSF) synthesis.
93. Gaps along the axon between segments of myelin are called \_\_\_\_\_\_\_\_.
94. dendritic spines
95. terminal branches
96. axon hillocks
97. nodes of Ranvier
98. Stimulating activity of what brain region would be predicted to enhance the effectiveness of biofeedback techniques?
99. insular cortex
100. parietal cortex.
101. the cerebellum
102. the amygdala
103. \_\_\_\_\_\_\_\_\_\_\_\_\_ are an important part of the adaptive immune system.
104. Phagocytes
105. Macrophages
106. T-cells
107. Microglia
108. In response to environmental stressors the adrenal medulla releases \_\_\_\_\_\_\_\_
     1. corticotropin-releasing hormone (CRH).
     2. adrenocorticotropic hormone (ACTH).
     3. glucocorticoids
     4. adrenaline.
109. In response to environmental stressors the adrenal cortex releases \_\_\_\_\_\_\_\_
     * + - 1. corticotropin-releasing hormone (CRH).
           2. adrenocorticotropic hormone (ACTH).
           3. glucocorticoids.
           4. adrenaline.
110. The choroid plexus produces \_\_\_\_\_\_\_\_
111. neuronal stem cells.
112. microglia.
113. cerebrospinal fluid (CSF).
114. the blood-brain barrier.
115. Brain lateralization means \_\_\_\_\_\_\_\_
116. the two cerebral hemispheres have specialized functions.
117. anatomical structures on one side of the brain have a twin counterpart on the other.
118. the two cerebral hemispheres are connected.
119. damage to one of the two cerebral hemispheres can be compensated for by the other.
120. Split-brain surgery conducted to treat epilepsy also provided evidence for \_\_\_\_\_\_\_\_
121. multiple personalities.
122. the biological basis of depression.
123. brain lateralization.
124. none of the above options are correct.
125. Which lobe of the cerebral cortex is dedicated to the control of movement and decision making?
126. Parietal lobe
127. Temporal lobe
128. Frontal lobe
129. Occipital lobe
130. Which of the following structures is critical for the regulation of the pituitary gland?
131. thalamus
132. hypothalamus
133. amygdala
134. basal ganglia
135. The corpus callosum connects what two structures?
136. The hippocampus and amygdala
137. The brain stem and forebrain
138. The thalamus and hypothalamus
139. The right and left cerebral hemispheres

1. The use of field sobriety tests by the police are intended to assess the function of \_\_\_\_\_\_\_\_
2. the pons.
3. the medulla oblongata.
4. the cerebellum.
5. the basal ganglia.
6. Which of the following is part of the forebrain?
7. hippocampus
8. cerebellum
9. superior colliculi
10. inferior colliculi
11. Which of the following is not part of the forebrain?
12. amygdala
13. basal ganglia
14. hypothalamus
15. red nucleus
16. Which of the following is part of the midbrain?
17. inferior colliculi
18. hypothalamus
19. basal ganglia
20. medulla oblongata
21. Which of the following is not part of the midbrain?
22. superior colliculi
23. inferior colliculi
24. basal ganglia
25. periaqueductal gray
26. Which of the following is part of the brainstem?
27. hypothalamus
28. thalamus
29. superior colliculi
30. basal ganglia
31. Which of the following is not part of the brainstem?
32. pons
33. medulla oblongata
34. reticular formation
35. hypothalamus
36. The brain micromanages its energy expenditure in proportion to its missions because it consumes \_\_\_\_\_\_\_\_ of the body’s fuel.
37. 5%
38. 15%
39. 25%
40. 50%
41. Voluntary intentional movements of the skeletal muscles are controlled by the \_\_\_\_\_\_\_\_
42. sympathetic nervous system.
43. parasympathetic nervous system.
44. somatic nervous system.
45. autonomic nervous system.
46. Which branch of the nervous system can be characterized as the “rest-and-digest” system?
47. sympathetic
48. parasympathetic
49. somatic
50. autonomic
51. Activation of the sympathetic nervous system \_\_\_\_\_\_\_\_
52. prepares the individual for empathic contact with emotional individuals.
53. prepares the individual to store excess calories as fat.
54. prepares the individual for digesting a meal.
55. prepares the individual for strenuous physical responses.
56. Up to 80% of the brain’s neurons can be found in \_\_\_\_\_\_\_\_
57. the cerebral cortex.
58. the sympathetic nervous system
59. the cerebellum.
60. the ganglia.
61. Endothelial cells with tight junctions in combination with \_\_\_\_\_\_\_\_ are responsible for the blood-brain barrier.
62. bipolar cells
63. astrocytes
64. oligodendrocytes
65. microglia
66. Self-proclaimed endurance artist \_\_\_\_\_\_\_\_ increased voluntary control over his autonomic breathing functions to break the world record for holding one’s breath.
67. David Blaine
68. Neal Miller
69. Camillo Golgi
70. Santiago Ramón y Cajal
71. Who abandoned the *nerve net theory* and endorsed the notion that neurons are discrete units, not part of a continuous network?
72. Camillo Golgi
73. Santiago Ramón y Cajal
74. Sir Charles Sherrington
75. Neal Miller
76. Who demonstrated that autonomic functions were within individual voluntary control?
77. Camillo Golgi
78. Santiago Ramón y Cajal
79. Sir Charles Sherrington
80. Neal Miller
81. Who believed that the nervous system consisted of a continuous network of connected nerves?
82. Camillo Golgi
83. Santiago Ramón y Cajal
84. Sir Charles Sherrington
85. Neal Miller