

**Test Bank for Introduction to Brain and Behavior 5th Edition Kolb Whishaw
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Chapter 2 What Is the Nervous System's Functional Anatomy?

1. The cerebellum contains _____ of all the neurons in the adult human brain.
 - A) 20%
 - B) 50%
 - C) 10%
 - D) 80%

2. Neural agenesis refers to:
 - A) an injury to a brain structure.
 - B) the degeneration of a structure.
 - C) the failure of a structure to develop.
 - D) the creation of a brain structure.

3. If a tree falls in the forest, does it make a sound if no one is present?
 - A) Yes, because sound is a physical phenomenon.
 - B) Yes, because if you record the noise and play it again later you will hear it.
 - C) No, because sound is a fabrication of your brain.
 - D) This is an unanswerable philosophical question.

4. Phenotypic plasticity refers to:
 - A) how an organism's genotype can be influenced by environmental factors.
 - B) how an organism's genetics can be influenced by its nervous system.
 - C) the study of nervous system plasticity.
 - D) None of the answers is correct.

5. The CNS includes the _____, whereas the PNS includes the _____.
 - A) brain and autonomic nervous system; spinal cord and somatic nervous system
 - B) spinal cord and autonomic nervous system; brain and somatic nervous system
 - C) spinal cord and brain; autonomic nervous system and somatic nervous system
 - D) somatic nervous system and brain; spinal cord and autonomic nervous system

6. The somatic nervous system includes the _____, whereas the autonomic nervous system includes the _____.
- A) sympathetic and parasympathetic divisions; cranial nerves and spinal nerves
 - B) brain and spinal cord; cranial nerves and spinal nerves
 - C) sympathetic and parasympathetic divisions; brain and spinal cord
 - D) cranial nerves and spinal nerves; sympathetic and parasympathetic divisions
7. The subdivision of the nervous system that controls the gut is called the:
- A) somatic nervous system.
 - B) enteric nervous system.
 - C) digestive nervous system.
 - D) autonomic nervous system.
8. The term afferent refers to _____ signals.
- A) incoming
 - B) outgoing
 - C) different
 - D) similar
9. Efferent is to afferent as:
- A) brain is to spinal cord.
 - B) sensory is to motor.
 - C) motor is to sensory.
 - D) incoming is to outgoing.
10. Afferent is to efferent as:
- A) out is to in.
 - B) top is to bottom.
 - C) in is to out.
 - D) bottom is to top.
11. Moving from superficial layers to deep layers, in what order are the meninges found?
- A) dura mater, arachnoid layer, pia mater
 - B) pia mater, arachnoid layer, dura mater
 - C) dura mater, pia mater, arachnoid layer
 - D) pia mater, dura mater, arachnoid layer

12. Brain nomenclature can be very confusing. This is because:
- A) many structures have several names.
 - B) research on brain includes scientists of many nationalities and languages
 - C) some structures were named by numbers.
 - D) All of the answers are correct.
13. Structures atop the brain or a structure within the brain are _____:
- A) lateral.
 - B) ventral.
 - C) medial.
 - D) dorsal.
14. The ventral portion of a structure is sometimes called:
- A) superior.
 - B) inferior.
 - C) dorsal.
 - D) medial.
15. Rostral is to caudal as:
- A) superior is to inferior.
 - B) dorsal is to ventral.
 - C) medial is to lateral.
 - D) anterior is to posterior.
16. Coronal section is to horizontal section as:
- A) frontal view is to dorsal view.
 - B) medial view is to frontal view.
 - C) frontal view is to medial view.
 - D) dorsal view is to medial view.
17. What best characterizes the composition of cerebrospinal fluid?
- A) sodium chloride and other salts
 - B) essential amino acids
 - C) glucocorticoids
 - D) simple sugars and small lipids

18. Cerebrospinal fluid (CSF) flows between:
- A) the arachnoid layer and pia mater.
 - B) the dura mater and pia mater.
 - C) the dura mater and arachnoid layer.
 - D) the superficial layer and deep layer.
19. The functions of the temporal lobes lie mainly in:
- A) decision making.
 - B) hearing, language, and music.
 - C) sensory processing and directing movements toward objects.
 - D) vision.
20. Following a brain injury Greg has difficulty in understanding language and music. He is most likely to have suffered damage to his:
- A) frontal lobe.
 - B) temporal lobe.
 - C) occipital lobe.
 - D) parietal lobe.
21. The frontal lobes are responsible for controlling:
- A) decision making.
 - B) hearing, language, and music.
 - C) vision.
 - D) sensory processing and directing movements toward objects.
22. Following a brain injury Suzanne experiences difficulty with problem solving and decision making. She is most likely to have suffered an injury to her:
- A) parietal lobe.
 - B) occipital lobe.
 - C) frontal lobe.
 - D) temporal lobe.
23. The parietal lobes primarily control:
- A) vision.
 - B) hearing, language, and music.
 - C) decision making.
 - D) sensory processing and directing movements toward objects.

24. Following a recent stroke Jim experiences difficulty with directing movements toward objects. The stroke is most likely to have occurred in his:
- A) frontal lobe.
 - B) temporal lobe.
 - C) occipital lobe.
 - D) parietal lobe.
25. The occipital lobes are responsible for:
- A) sensory processing and directing movements toward objects.
 - B) decision making.
 - C) visual processing.
 - D) hearing, language, and music.
26. During a recent car accident Allison suffered a brain injury that left her blind even though her eyes are working fine. She is most likely to have suffered damage to her:
- A) occipital lobe.
 - B) frontal lobe.
 - C) temporal lobe.
 - D) parietal lobe.
27. Sulci are:
- A) found only in the cerebellum.
 - B) found only in the cerebrum.
 - C) the cracks between the bumps on the brain.
 - D) the bumps on the surface of the brain.
28. Gyri are:
- A) bumps on the surface of the cortex.
 - B) cracks on the surface of the cortex.
 - C) deformities on the surface of the cortex.
 - D) only found in the spinal cord.
29. Which of the following is NOT a symptom associated with meningitis?
- A) severe headache
 - B) stiff neck
 - C) aggressiveness
 - D) convulsions

30. Sulcus is to gyrus as:
- A) crack is to bump.
 - B) bump is to crack.
 - C) ridge is to mountain.
 - D) crack is to crevasse.
31. The symptoms of the "sleeping sickness" that arose during World War I are caused by lesions to the:
- A) putamen.
 - B) globus pallidus.
 - C) substantia nigra.
 - D) amygdala.
32. Which of the following arteries does NOT act as a major supplier to the cerebrum?
- A) anterior
 - B) superior
 - C) middle
 - D) posterior
33. The artery that provides blood to the lateral, temporal, and frontal lobes is the _____ cerebral artery.
- A) anterior
 - B) middle
 - C) posterior
 - D) inferior
34. The artery that provides blood to the occipital lobes is the _____ cerebral artery.
- A) anterior
 - B) middle
 - C) posterior
 - D) inferior
35. A disruption of the blood supply to a brain region causes:
- A) meningitis.
 - B) encephalitis.
 - C) a stroke.
 - D) cerebral agenesis.

36. _____ is mainly composed of cell bodies and capillaries.
- A) Reticular matter
 - B) Gray matter
 - C) The corpus callosum
 - D) White matter
37. _____ is(are) mainly composed of nerve fibers with fatty coverings.
- A) Cerebral aqueducts
 - B) Ventricles
 - C) White matter
 - D) Gray matter
38. CSF is made in:
- A) the pia mater.
 - B) the dura mater.
 - C) the ventricles.
 - D) the arachnoid layer.
39. The large cavities inside the brain are known as:
- A) ventricles and are filled with CSF.
 - B) ventricles and are filled with blood.
 - C) the arachnoid layer and are filled with CSF.
 - D) the arachnoid layer and are filled with blood.
40. What is the most unlikely function of CSF?
- A) aiding cell transmission in the brain
 - B) acting as a shock absorber to the brain
 - C) allowing certain compounds access
 - D) helping the brain excrete metabolic wastes from the brain
41. Ischemic stroke is caused by:
- A) a clot.
 - B) a broken blood vessel.
 - C) meningitis.
 - D) encephalitis.

42. A hemorrhagic stroke is caused by:
- A) a blood clot.
 - B) a ruptured blood vessel.
 - C) an embolism.
 - D) All of the answers are correct.
43. Tissue plasminogen activator (t-PA) is effective for treating:
- A) ischemic stroke.
 - B) hemorrhagic stroke.
 - C) meningitis.
 - D) All of the answers are correct.
44. When observing a sagittal brain section at the midline, what is the prominent feature composed of white matter?
- A) corpus callosum
 - B) ventricles
 - C) cingulate cortex
 - D) hippocampus
45. Cutting the brain from front to back will give:
- A) a coronal view.
 - B) a frontal view.
 - C) a horizontal view.
 - D) a sagittal view.
46. According to Descartes, the seat of the mind was located in the:
- A) frontal lobes.
 - B) thalamus.
 - C) pineal gland.
 - D) temporal lobes.
47. The role of glial cells is primarily:
- A) to carry out information processing in the brain.
 - B) to send signals from one brain region to another.
 - C) to modulate the activity of neurons.
 - D) to process sensory input.

48. CNS is to PNS as:
- A) neuron is to glia.
 - B) gray matter is to white matter.
 - C) nerve is to tract.
 - D) tract is to nerve.
49. The prosencephalon is sometimes referred to as:
- A) the hindbrain.
 - B) the middle brain.
 - C) the auxiliary brain.
 - D) the front brain.
50. In the human brain the basal ganglia, limbic system, and olfactory bulbs are considered part of the:
- A) telencephalon.
 - B) metencephalon.
 - C) diencephalon.
 - D) mesencephalon.
51. In the human brain the mesencephalon contains:
- A) the neocortex.
 - B) cerebellum.
 - C) tectum and tegmentum.
 - D) medulla.
52. The thalamus and hypothalamus are considered part of the:
- A) myelencephalon.
 - B) telencephalon.
 - C) metencephalon.
 - D) diencephalon.
53. Which of the following structures is NOT part of the metencephalon?
- A) the cerebellum
 - B) the pons
 - C) the medulla
 - D) None of the answers is correct.

54. Which of the following is NOT part of the hindbrain?
- A) the pons
 - B) the tegmentum
 - C) the reticular formation
 - D) the medulla oblongata
55. Awakening from sleep is a function of:
- A) the pons.
 - B) the medulla.
 - C) the cerebellum.
 - D) the reticular formation.
56. The reticular formation is primarily made up of:
- A) gray matter only.
 - B) white matter only.
 - C) gray matter and white matter.
 - D) None of the answers is correct.
57. The primary function of the cerebellum is:
- A) control of sleeping and waking.
 - B) control of movement.
 - C) control of heart rate and respiration.
 - D) sensory processing.
58. Orienting responses (e.g., turning your head to locate the source of a sound) are controlled by:
- A) the pons.
 - B) the superior and inferior colliculi.
 - C) the cerebellum.
 - D) the diencephalon.
59. The red nucleus, substantia nigra, and periaqueductal gray matter are parts of the:
- A) tectum.
 - B) pons.
 - C) tegmentum.
 - D) reticular formation.

60. Regulation of breathing and the cardiovascular system is primarily controlled by:
- A) the pons.
 - B) the reticular activating system.
 - C) the medulla.
 - D) the cerebellum.
61. What are the functions of the superior and inferior colliculi respectively?
- A) auditory and visual
 - B) visual and auditory
 - C) tactile and visual
 - D) visual and tactile
62. Which of the following is part of the tegmentum?
- A) the tectum
 - B) the substantia nigra
 - C) the inferior colliculus
 - D) the superior colliculus
63. The hypothalamus is NOT primarily involved in:
- A) motor movements.
 - B) sleeping.
 - C) emotional behavior.
 - D) sensory input.
64. Sexual behavior is a primary function of:
- A) the thalamus.
 - B) the hypothalamus.
 - C) the gyrus fornicatus.
 - D) the red nucleus.
65. The _____ acts as a sensory relay station for signals arriving from sensory receptors that are being sent to the cortex.
- A) pituitary
 - B) pons
 - C) hypothalamus
 - D) thalamus

66. Thalamus is to hypothalamus as:
- A) sensory input is to body maintenance.
 - B) body maintenance is to sensory input.
 - C) sexual behavior is to sleeping.
 - D) feeding is to endocrine function.
67. The lateral geniculate nucleus deals with:
- A) touch.
 - B) hearing.
 - C) olfaction.
 - D) vision.
68. The primary function of the thalamus is:
- A) transmission of sensory inputs to the cortex.
 - B) regulation of hormone function.
 - C) regulation of sleeping and waking.
 - D) control of orienting responses.
69. Which of the following is NOT part of the forebrain?
- A) the cortex
 - B) the tectum
 - C) the basal ganglia
 - D) the limbic system
70. The basal ganglia primarily controls:
- A) decision making.
 - B) voluntary movement.
 - C) learning and memory.
 - D) processing of sound.
71. Cognition is usually attributed to:
- A) the limbic cortex.
 - B) the cingulate cortex.
 - C) the neocortex.
 - D) the parahippocampal cortex.

72. Deficits in processing basic visual information (e.g., luminance) are caused by damage to the:
- A) frontal lobe.
 - B) parietal lobe.
 - C) occipital lobe.
 - D) temporal lobe.
73. A person who has trouble locating the source of stimulation on the skin most likely has damage to the:
- A) temporal lobe.
 - B) parietal lobe.
 - C) occipital lobe.
 - D) frontal lobe.
74. Trouble recognizing sounds is most commonly associated with damage to the:
- A) parietal lobe.
 - B) frontal lobe.
 - C) occipital lobe.
 - D) temporal lobe.
75. Following a brain injury Steven has trouble organizing himself and has difficulty formulating plans to accomplish goals. Steven is most likely to have damaged his:
- A) frontal lobe.
 - B) temporal lobe.
 - C) parietal lobe.
 - D) occipital lobe.
76. Six layers of gray matter on top of a layer of white matter would describe:
- A) the limbic cortex.
 - B) the basal ganglia.
 - C) the neocortex.
 - D) the cingulate cortex.
77. Cortical regions:
- A) have the same density of cell layers.
 - B) have different specific chemical characteristics.
 - C) when stained look the same across the various areas.
 - D) have very specific functions and rarely interrelate.

78. Motor output signals are sent through layer(s)_____ of the cortex.
A) V and VI
B) I to III
C) IV
D) II
79. Integrative functions are processed by layer(s)_____ of the cortex.
A) V and VI
B) I to III
C) IV
D) All of the answers are correct.
80. Sensory inputs are transmitted through layer(s)_____ of the cortex.
A) I to III
B) V and VI
C) IV
D) All of the answers are correct.
81. Memory and emotion are processed by the:
A) limbic system.
B) basal ganglia.
C) thalamus.
D) parietal lobe.
82. The caudate nucleus and the putamen are part of the:
A) basal ganglia.
B) limbic system.
C) olfactory system.
D) hindbrain.
83. Parkinson disease and Tourette syndrome are neurological diseases associated with the:
A) cerebellum.
B) frontal lobes.
C) basal ganglia.
D) thalamus.

84. The hippocampus and the amygdala are part of the:
- A) basal ganglia.
 - B) limbic system.
 - C) olfactory system.
 - D) hindbrain.
85. The hippocampus and the cingulate cortex participate in performing_____functions.
- A) digestive
 - B) problem solving
 - C) sexual
 - D) memory
86. Which of the following structures is NOT part of the limbic system?
- A) hippocampus
 - B) amygdala
 - C) cingulate cortex
 - D) putamen
87. Removal of the amygdala in cats leads to:
- A) changes in temperature regulation.
 - B) sleep disruption.
 - C) emotional changes.
 - D) motor disruption.
88. There are_____pairs of cranial nerves.
- A) 12
 - B) 24
 - C) 16
 - D) 8
89. Sensory and motor signals from the head and neck travel through:
- A) lumbar sections of the spinal cord.
 - B) sacral portions of the spinal cord.
 - C) the cranial nerves.
 - D) thoracic sections of the spinal cord.

90. Sensory and motor signals to the arms are sent through _____ sections of the spinal cord.
- A) sacral
 - B) thoracic
 - C) lumbar
 - D) cervical
91. Sensory and motor signals from the head and neck are sent to _____ sections of the spinal cord.
- A) thoracic
 - B) sacral
 - C) lumbar
 - D) None of the answers is correct.
92. Dermatomes are associated with the:
- A) peripheral nervous system
 - B) spinal nervous system.
 - C) autonomic nervous system.
 - D) cranial nervous system.
93. The law of Bell and Magendie states that the:
- A) dorsal spinal cord is motor and the ventral is sensory.
 - B) medial spinal cord is motor and the lateral is sensory.
 - C) dorsal spinal cord is sensory and the ventral is motor.
 - D) medial spinal cord is sensory and the lateral is motor.
94. Motor output from the spinal cord travels via the:
- A) dorsal spinal cord.
 - B) ventral spinal cord.
 - C) medial spinal cord.
 - D) lateral spinal cord.
95. Sensory input to the spinal cord travels via the:
- A) dorsal spinal cord.
 - B) ventral spinal cord.
 - C) medial spinal cord.
 - D) lateral spinal cord.

96. Increases in heart rate and inhibition of digestion are controlled by the:
- A) sympathetic nervous system.
 - B) parasympathetic nervous system.
 - C) spinal nervous system.
 - D) cranial nervous system.
97. The _____ nervous system works to help us "rest and digest," whereas the _____ nervous system helps initiate fight-or-flight responses.
- A) sympathetic; parasympathetic
 - B) sympathetic; spinal
 - C) parasympathetic; sympathetic
 - D) somatic; parasympathetic
98. The vagus, facial, and oculomotor nerves are the primary components of the:
- A) cranial nervous system.
 - B) sympathetic nervous system.
 - C) the parasympathetic nervous system.
 - D) spinal nervous system.
99. The _____ contains a sheet of neurons lining the esophagus, stomach, small intestine, and colon.
- A) enteric nervous system (ENS)
 - B) autonomic nervous system (ANS)
 - C) somatic nervous system (SNS)
 - D) central nervous system (CNS)
100. Language control is usually situated in the:
- A) same place on both hemispheres.
 - B) different locations on each hemisphere.
 - C) right hemisphere.
 - D) left hemisphere.
101. The left hemisphere primarily controls functions on the _____ side of the body.
- A) contralateral
 - B) left
 - C) ipsilateral
 - D) None of the answers is correct.

102. Spatial navigation is controlled by _____ of the brain.
- A) the left hemisphere
 - B) both hemispheres
 - C) the right hemisphere
 - D) None of the answers is correct.
103. The brain appears to have:
- A) mainly serial or hierarchical systems.
 - B) mainly parallel systems.
 - C) a combination of serial and parallel systems.
 - D) parallel systems at lower levels and serial processing farther up.
104. The notion of segregation of sensory and motor functions in the nervous system was postulated by:
- A) François Magendie and David Bell.
 - B) David Hubel.
 - C) John Hughlings Jackson.
 - D) Nige Torette.
105. Memory seems to be located:
- A) in the cingulate gyrus.
 - B) in the hippocampus.
 - C) throughout the brain.
 - D) primarily in the temporal lobes.
106. Changes in balance between excitation and inhibition account for symptoms in:
- A) Tourette syndrome.
 - B) Parkinson disease.
 - C) stroke.
 - D) both Tourette syndrome and Parkinson disease.

Answer Key

1. D
2. C
3. C
4. A
5. C
6. D
7. B
8. A
9. C
10. C
11. A
12. D
13. D
14. B
15. D
16. A
17. A
18. A
19. B
20. B
21. A
22. C
23. D
24. D
25. C
26. A
27. C
28. A
29. C
30. A
31. C
32. B
33. B
34. C
35. C
36. B
37. C
38. C
39. A
40. A
41. A
42. B
43. A
44. A

45. D
46. C
47. C
48. D
49. D
50. A
51. C
52. D
53. C
54. B
55. D
56. C
57. B
58. B
59. C
60. C
61. B
62. B
63. D
64. B
65. B
66. A
67. D
68. A
69. B
70. B
71. C
72. C
73. B
74. D
75. A
76. C
77. B
78. A
79. B
80. C
81. A
82. A
83. C
84. B
85. D
86. D
87. C
88. A
89. C
90. D

- 91. D
- 92. B
- 93. C
- 94. B
- 95. A
- 96. A
- 97. C
- 98. C
- 99. A
- 100. D
- 101. A
- 102. C
- 103. C
- 104. A
- 105. C
- 106. D