NEUROSCIENCE / BIOLOGICAL TEST

PRINCETON REVIEW

1. Damage to the Broca’s area in the left cerebral hemisphere on the brain would likely result in which of the following?

   (A) A repetition of the speech of others
   (B) A loss of ability to speak
   (C) A loss of the ability to comprehend speech
   (D) A loss of in the ability to comprehend speech
   (E) An inability to solve verbal problems

2. In the neuron, the main function for the dendrites is to

   (A) release neurotransmitters to signal subsequent neurons
   (B) preserve the speed and integrity of the neural signals as it propagates down the axon
   (C) perform the metabolic reactions necessary to nourish and maintain the nerve cell
   (D) receive input from other neurons
   (E) connect the cell body to the axon

3. Veronica is having trouble balancing as she walks, and her muscles see, to have lost strength and tone. A neuroanatomist looking into her condition would most likely suspect a problem with the?

   (A) medulla oblongata
   (B) right cerebral hemisphere
   (C) cerebellum
   (D) occipital lobes
   (E) thalamus

4. Which of the following neurotransmitters is generally associated with the inhibition of continued neural signaling?

   (A) Dopamine
   (B) Adrenaline
   (C) GABA
   (D) Serotonin
   (E) Acetylcholine

5. John is constantly overeating and can’t seem to control his appetite, no matter how hard he tries. It is possible that John may have damage in which of the following brain structures?

   (A) Thalamus
   (B) Pons
   (C) Hypothalamus
   (D) Amygdala
   (E) Association

Kaplan Review
6. The area of the brain responsible for controlling motor movements is the
   (A) hindbrain
   (B) temporal lobe
   (C) frontal lobe
   (D) midbrain
   (E) occipital lobe

7. The area of the brain responsible for controlling vision is the
   (A) hindbrain
   (B) temporal lobe
   (C) frontal lobe
   (D) midbrain
   (E) occipital lobe

8. There are several techniques for peering inside the brain. Which of the following provides a detailed image only of the structure of the brain?
   (A) MRI
   (B) fMRI
   (C) CT scan
   (D) X-ray
   (E) PET scan

9. The most commonly used animal model in the physiological psychology is the
   (A) dog
   (B) rat
   (C) cat
   (D) monkey
   (E) dolphin

10. The area of the brain most responsible for controlling the motivation for fighting, fleeing, Feeding, and sexual reproduction is the
    (A) thalamus
    (B) hypothalamus
    (C) hippocampus
    (D) pons
    (E) medulla oblongata

11. The process of a neuron firing is called
    (A) action potential
    (B) inhibitory potential
    (C) excitatory potential
    (D) graded potential
    (E) neuron potential
12. During a softball game, you are hit in the head with a ball. Your vision becomes blurred. What region of the brain was MOST likely involved?

(A) Hindbrain  
(B) Occipital lobe  
(C) Temporal lobe  
(D) Midbrain  
(E) Parietal lobe

13. The ________________ seems to be responsible for motivation.

(A) Occipital lobe  
(B) Temporal lobe  
(C) Thalamus  
(D) Hypothalamus  
(E) Cerebral cortex

14. Which of the following imaging techniques provides a detailed impression of the activity of the brain?

(A) MRI  
(B) PET  
(C) fMRI  
(D) CT  
(E) X-Ray

15. The ________________ is the area of the brain that seems to be responsible for language.

(A) Limbic system  
(B) Occipital lobe  
(C) Temporal lobe  
(D) Parietal lobe  
(E) Hypothalamus

16. The part of the brain that seems to be responsible for receiving sensory information from the environment is called the ________________.

(A) Motor cortex  
(B) Somatosensory cortex  
(C) Sensory memory  
(D) Receptive field  
(E) Limbic system

17. A fissure is a ________________ in the brain.

(A) Complex  
(B) Valley or gap  
(C) Neuron  
(D) Neurotransmitter  
(E) Vesicle
18. The part of the neuron that receives information from neighboring cells is called the
   (A) membrane
   (B) axons
   (C) vesicle
   (D) nucleus
   (E) dendrites

19. The part of the neuron that sends information to neighboring cells is called the
   (A) membrane
   (B) axons
   (C) vesicles
   (D) nucleus
   (E) dendrites

20. What ion is concentrated outside the cells membrane when a cell is at rest?
   (A) Oxygen
   (B) Nitrogen
   (C) Potassium
   (D) Sodium
   (E) Chlorine

21. The gap between cells is called a
   (A) dendritic gap
   (B) axon space
   (C) synergy
   (D) synapse
   (E) membrane space

22. The ________ pair of chromosomes controls the sex of an infant.
   (A) 21st
   (B) 32nd
   (C) 13th
   (D) 22nd
   (E) 23rd

McGraw Hill

23. A neuron without terminal buttons would be unable to
   (A) receive information
   (B) generate and action potential
   (C) direct the synthesis of neurotransmitters
   (D) secrete neurotransmitters to postsynaptic neurons
   (E) transport ions across the cell membrane

24. Paul Broca found that the loss of the ability to speak intelligibly is associated with damage to a
   region of the brain in the
25. Scientists are able to see changes in the brain as it processes information by the means of

(A) lesioning  
(B) autopsy  
(C) CT  
(D) MRI  
(E) PET

26. The simplest behaviors we carry on

(F) are learned when we are infants  
(G) do not involve the central nervous system  
(H) are called instincts  
(I) include sneezing and blinking  
(J) must be processed by the medulla

27. Of the following, the effect of adrenalin on the body is most similar to the effect of the

a. Cerebellum  
b. Parathyroids  
c. Somatic nervous system  
d. Parasympathetic nervous system  
e. Sympathetic nervous system

28. Mr. Jenkins’ suffered a “stroke” as a result of a brain injury. Although he can still move the fingers on this right hand, he has lost sensation in these parts. Of the following, the site of damage to his brain is most likely in the

a. Right frontal lobe  
b. Right temporal lobe  
c. Left frontal lobe  
d. Left parietal lobe  
e. Hypothalamus

29. Of the following, which are located exclusively in the central nervous system?

a. Afferent neurons  
b. Interneurons  
c. Efferent neurons  
d. Glial cells  
e. Effectors

30. Which of the following glands interact(s) most directly with all of the others to help regulate body processes?
a. Pituitary  
b. Adrenals  
c. Parathyroids  
d. Thyroid  
e. Ovaries

31. Gunshot wounds, Tumors, and strokes all result in

a. Infections  
b. Significant loss of function  
c. Lesions  
d. Pain  
e. Necessity for surgery

32. Which includes all of the others?

a. Autonomic nervous system  
b. Peripheral nervous system  
c. Somatic nervous system  
d. Parasympathetic nervous system  
e. Sympathetic nervous system

33. Which stimulate a muscle to contract?

a. Adrenal hormones  
b. Receptors  
c. Sensory neurons  
d. Motor neurons  
e. Interneurons

34. The part of the brain most closely associated with maintain balance and the coordination of complex sequences of movements is the

a. Hypothalamus  
b. Thalamus  
c. Pons  
d. Medulla  
e. Cerebellum

35. Loss of the ability of the brain to produce adequate levels of dopamine often leads to

a. Aphasia  
b. Alzheimer’s disease  
c. Parkinson’s disease  
d. Bipolar disorder  
e. Amnesia

36. Which task is primarily a right cerebral hemisphere function in most people?

a. Understanding written language  
b. Understanding spoken language  
c. Processing visual information from the left eye
d. Recognizing faces  
e. Processing sensory information from the right leg

**Fast Track**

37. The area of the brain essential to the formation of long-term explicit memories is

a. The pineal gland  
b. The hypothalamus  
c. The thalamus  
d. The hippocampus  
e. The pituitary gland

38. While running a marathon, Emily experienced an increase in the body’s natural painkiller. Which of the following chemicals has been associated with the alleviation of pain?

a. Serotonin  
b. GABA  
c. Melatonin  
d. Endorphins  
e. Acetylcholine

39. A person who has lesions on his brain is having difficulty verbalizing complete or coherent sentences. This person most likely suffered damage to what part of the brain?

a. Broca’s area  
b. Wernicke’s area  
c. Motor cortex  
d. Auditory cortex  
e. Somatosensory cortex

40. The fact that a neuron either fires at full strength or does not fire at all is the result of which of the following?

a. Depolarization  
b. All-or-nothing principle  
c. Level of excitation  
d. Refractory period  
e. Axon hillock processing

41. Dr. Dolan is interested in studying short-term memory and the role of the prefrontal cortex in related tasks. Which of the following techniques would he most likely use to determine whether the prefrontal cortex is involved in short-term memory?

a. Positive emissions tomography (PET) scan  
b. Electroencephalograph (EEG)  
c. Magnetic resonance imaging (MRI) scan  
d. Computed tomography (CT or CAT) scan  
e. Transcranial magnetic stimulation (TMS)
42. Underproduction of _________ has been associated with Alzheimer’s disease, whereas underproduction of _________ has been associated with Parkinson’s disease.
   a. Dopamine; acetylcholine  
   b. Serotonin; GABA  
   c. Acetylcholine; dopamine  
   d. Norepinephrine; dopamine  
   e. Acetylcholine; serotonin

43. Acetylcholine appears to play a vital role in the formation of long-term memories. It is reasonable to conclude that which area of the brain is most likely affected by Alzheimer’s disease?
   a. Amygdale  
   b. Hypothalamus  
   c. Hippocampus  
   d. Corpus callosum  
   e. Thalamus

44. Olds and Milner (1954) concluded that which area of the brain is responsible for producing the neurotransmitter dopamine and has thus been given the distinction of being the brain’s “please center”?
   a. The limbic system  
   b. The auditory cortex  
   c. Broca’s area  
   d. Wernicke’s area  
   e. The reticular activating system

45. After having his corpus callosum severed, Juan would most likely experience which of the following problems?
   a. An inability to form complete and coherent sentences  
   b. An inability to plan for future events  
   c. An inability to distinguish where a sound is coming from  
   d. An inability to control smooth bodily movements  
   e. An inability to correctly identify an object while holding it in one hand

46. An excess of which neurotransmitter has been associated with schizophrenia, while a deficiency of the same neurotransmitter has been associated with Parkinson’s disease?
   a. Serotonin  
   b. Melatonin  
   c. Dopamine  
   d. GABA  
   e. Acetylcholine

47. The deterioration of myelin, causing leakage of electrical activity within the axon, has been associated with which neurological disorder?
   a. Parkinson’s disease  
   b. Alzheimer’s disease  
   c. Muscular dystrophy
d. Multiple sclerosis
e. Huntington’s disease

48. Which of the following results in the activation of the sympathetic nervous system?

a. Your palms are dry
b. Your mouth is wet with saliva
c. Your digestive system is processing food
d. Your heartbeat is elevated
e. Your respiration rate is lowered

49. Which of the following is an example of the functioning of the somatic nervous system?

a. Dana just finished lunch, and her digestive system is working to process the food
b. Feelings of embarrassment caused Alex’s face to turn red
c. While he was running, Steve’s heart rate increased
d. Aleshia began to perspire when she thought about her upcoming test
e. Karly picked up her pencil after it had fallen to the floor

50. Brittney’s ability to maintain balance during a dance routine is due to the functioning of which areas of the brain?

a. Temporal and frontal lobes
b. Frontal and occipital lobes
c. Cerebellum and temporal lobe
d. Occipital and temporal lobes
e. Cerebellum and occipital lobe

51. Time is fifteen years old and seven feet tall. His parents are both about five-and-a-half-feet tall. Tim’s height is most likely due to an

a. Overactive pineal gland
b. Underactive pituitary gland
c. Overactive pituitary gland
d. Underactive thyroid gland
e. Overactive thyroid gland

52. Breathing and heartbeat are controlled by the

a. Pons
b. Corpus callosum
c. Parietal lobe
d. Hippocampus
e. Medulla

53. A PET scan best allows researchers to determine

a. The presence of tumors in the brain
b. Electrical activity on the surface of the brain
c. The size of the internal structures of the brain
d. The location of strokes
e. The functions of various brain regions
54. Damage to the hippocampus would result in
   a. Difficulties with balance and coordination
   b. Memory problems
   c. The false sensation of burning in parts of the body
   d. Emotional outbursts
   e. Death

55. Surgical stimulation of the sensory cortex might result in the false sensation
   a. Of music
   b. Of flashes of colored light
   c. That someone is whispering your name
   d. That someone is tickling you
   e. Of a bad odor

56. Awareness of ourselves and our environment best describes
   a. Consciousness
   b. Dual processing
   c. Inattentional blindness
   d. Change blindness
   e. Cognitive neuroscience

57. The link between the nervous system and the endocrine system is maintained by the
   a. Hypothalamus
   b. Temporal lobe
   c. Cerebellum
   d. Thalamus
   e. Motor cortex

58. A researcher interested in determining the size of a particular area of the brain would be most likely
to use a(n)
   a. Lesion
   b. EEG
   c. MRI
   d. fMRI
   e. PET scan

59. The support cells that provide nourishment and help the brain in numerous other ways are called
   a. Neurons
   b. Interneurons
   c. Glial cells
   d. Endocrine cells
   e. Myelin cells

60. Which of the following is a task more likely to be accomplished by the right hemisphere of the brain?
a. Solving a mathematical equation  
b. Reading  
c. Making a brief oral presentation to a class  
d. Recognizing a friend’s face  
e. Solving a logic problem  

61. Brain plasticity refers to the 

a. Feel of healthy human brain tissue  
b. Ability of the brain to transfer information from one hemisphere to the other  
c. Way a brain gets larger as a child grows  
d. Wide variety of functions performed by the human brain  
e. Ability of brain tissue to take on new functions  

62. When Heinrich Kluver and neurosurgeon Paul Bucy surgically lesioned the amygdala of a rhesus monkey’s brain, the monkey 

a. Lost its ability to coordinate movement  
b. Died because its heartbeat became irregular  
c. Became less aggressive  
d. Lost its memory of where food was stored  
e. Sank into an irreversible coma  

63. The reward deficiency syndrome argues that addictive disorders may be partially explained by genetic flaws in the 

a. Brainstem  
b. Cerebral cortex  
c. Limbic system  
d. Endocrine system  
e. Cerebrum  

64. An individual experiences brain damage that produces a coma. Which part of the brain was probably damage? 

a. Corpus Callosum  
b. Reticular formation  
c. Frontal lobe  
d. Cerebellum  
e. Limbic system
KEY

1. B.
2. D.
3. C.
4. C.
5. C.
6. C.
7. E.
8. A.
9. B.
10. B.
11. A.
12. B.
13. D.
14. B.
15. C.
16. B.
17. B.
18. E.
19. B.
20. D.
21. D.
22. E.
23. D.
24. E.
25. E.
26. D.
27. E.
28. D.
29. B.
30. A.
31. C.
32. B.
33. D.
34. E.
35. C.
36. D.
37. D.
38. D.
39. A.
40. B.
41. E.
42. C.
43. C.
44. A.
45. E.
46. C.
47. D.
48. D.
49. E.
50. E.
51. C.
52. E.
53. E.
54. B.
55. D.
56. A.
57. A.
58. C.
59. C.
60. D.
61. E.
62. C.
63. C.
64. B.