**The Biological Basis of Behavior**

**Multiple-Choice Questions**

***2.1 Neurons: The Messengers***

1. The brain of an average human being contains as many as a hundred billion nerve 30

 cells, or \_\_\_\_\_\_. F, b

 a. dendrites c. axons

b. neurons d. nerves

 4 yr.: 88% r = .10; 2 yr.: 86% r = .28

 2. There are approximately \_\_\_\_\_\_ neurons in the brain of an average human being. 30

 a. 100 thousand c. 100 billion F, c

 b. 100 million d. 100 trillion

 3. The short fibers branching out around the neuron cell body are called \_\_\_\_\_\_. 30

 a. lobe s c. nerves F, d

 b. glands d. dendrites

 4. The cell which underlies the activity of the entire nervous system is the \_\_\_\_\_\_. 31

 a. glial cell c. neuron F, c

 b. epidermal cell d. T-cell

 4 yr.: 96% r = .11

 5. The part of a neuron which contains the nucleus, the largest amount of mass in the 30

\*\*\* cell, and is where metabolism takes place, is the \_\_\_\_\_\_. C, d

 a. axon c. cell membrane

 b. dendrite d. cell body

 6. The short fibers which extend from the neuron, allowing it to receive messages from 30

\*\*\* other neurons are \_\_\_\_\_\_. C, b

 a. axons c. nerve bundles

 b. dendrites d. synapses

 7. The function of the neuron's dendrite is to \_\_\_\_\_\_. 30

\*\*\* a. conduct electrical impulses toward other neurons C, c

 b. regulate the neuron's life processes

 c. receive messages from neighboring neurons

 d. insulate against leakage of electrical impulses

 8. The part of the neuron that carries outgoing messages either to another neuron or 30

\*\*\* to a muscle or gland is the \_\_\_\_\_\_. C, b

 a. myelin sheath c. dendrite

 b. axon d. cell body

 9. The function of the neuron's axon is to \_\_\_\_\_\_. 30

\*\*\* a. conduct electrical impulses toward other neurons C, a

 b. regulate the neuron's life processes

 c. receive messages from neighboring neurons

 d. insulate against leakage of electrical impulses

 10. Axons in the spinal cord can reach a length of up to \_\_\_\_\_\_ feet. 30

 a. two c. four F, b

 b. three d. five

 11. Each neuron has \_\_\_\_\_\_ axon(s). 30

 a. one c. four F, a

 b. two d. eight

 12. Neurons typically have \_\_\_\_\_\_. 30

 a. one axon and one dendrite c. many axons and one dendrite F, b

 b. one axon and many dendrites d. many axons and many dendrites

 13. A group of axons bundled together is called a \_\_\_\_\_\_. 30

 a. synaptic vesicle c. nerve C, c

 b. primary cluster d. myelinated pathway

 14. A group of axons bundled together is called a \_\_\_\_\_\_. 30

 a. synaptic vesicle c. tract C, c

 b. primary cluster d. myelinated pathway

 15. A nerve is really a(n) \_\_\_\_\_\_. 30

\*\*\* a. group of dendrites bundled together C, d

 b. afferent neuron

 c. cell nucleus

 d. group of axons bundled together

 4 yr.: 89% r = .27

 16. A nerve is a group of \_\_\_\_\_\_ bundled together. 30

 a. axons c. interneurons C, a

 b. dendrites d. glial cells

 17. A nerve is composed of \_\_\_\_\_\_. 30

\*\*\* a. a neuron and its synapses c. elongated glial cells C, d

 b. a bundle of synapses d. a bundle of axons

 18. Within a neuron, information always flows from \_\_\_\_\_\_. 30

\*\*\* a. dendrite to cell body to axon F, a

 b. cell body to axon to dendrite

 c. cell body to dendrite to axon

 d. axon to cell body to dendrite

 4 yr.: 69% r = .28; 4 yr.: 76% r = .29

 19. The white, fatty covering that surrounds some axons is \_\_\_\_\_\_. 30

 a. the cell membrane c. the synaptic cleft C, d

 b. glial tissue d. the myelin sheath

 20. The primary purpose of the myelin sheath is to \_\_\_\_\_\_. 31

\*\*\* a. provide a place for neural respiration and cell metabolism to occur F, c

 b. provide a soft covering to hold axons in place

 c. insulate the neuron so it can transmit information more efficiently

 d. receive messages from outside the neuron and carry them to the cell

 nucleus

 21. The term "white matter" refers to \_\_\_\_\_\_. 31

 a. glial cells c. myelinated axons C, c

 b. unmyelinated axons d. interneurons

 22. Terminal buttons are located \_\_\_\_\_\_. 33

 a. in the cell body c. in the nodes of the myelin sheath F, d

 b. at the end of the dendrite d. at the end of the axon

 23. Terminal buttons release chemicals called \_\_\_\_\_\_. 33

 a. neurotransmitters c. hormones F, a

 b. antigens d. antibodies

 24. The myelin sheath \_\_\_\_\_\_ of neural messages. 31

 a. blocks the flow c. redirects the flow F, d

 b. lessens the speed d. increases the speed

 25. The language used by neurons to communicate \_\_\_\_\_\_. 31

 a. is not yet known, despite years of research F, b

 b. involves simple “yes-no,” “on-off” electrochemical impulses

 c. involves neurons transitioning from one of four different electrochemical states

 to another

 d. is extremely flexible and complex, similar to human spoken language

 26. Electrically charged particles found both inside and outside the neuron are \_\_\_\_\_\_. 31-32

 a. follicles c. free radicals C, d

 b. nodes d. ions

 27. Resting potential is the electrical charge across a neural membrane when \_\_\_\_\_\_ 32

 ions concentrate on the outside and \_\_\_\_\_\_ concentrate on the inside. F, d

 a. not enough negative; excess positive

 b. not enough positive; excess negative

 c. excess negative; excess positive

 d. excess positive; excess negative

 28. During its resting state, the electrical charge inside the neuron is \_\_\_\_\_\_ the electrical 32

\*\*\* charge outside the neuron. F, b

 a. positive compared to c. larger than

 b. negative compared to d. smaller than

 29. The cell body is enclosed by the \_\_\_\_\_\_. 31

\*\*\* a. axon c. cell membrane F, c

 b. dendrite d. myelin sheath

 30. The cell membrane of a neuron is \_\_\_\_\_\_. 31

 a. impermeable c. semi-permeable F, c

 b. translucent d. completely permeable

 31. An electrical charge that occurs across the neural membrane when positive ions concentrate 32

 on the outside and negative ions concentrate on the inside, is known as \_\_\_\_\_\_. C, d

 a. flux c. depolarization

 b. action potential d. resting potential

 32. Organisms or fluids attempting to enter the cell body of a neuron must first pass 32

 through the \_\_\_\_\_\_. A, b

 a. myelin sheath c. axon

 b. cell membrane d. dendrite

 33. When the electrical charge inside a neuron is negative, in relation to the 32

\*\*\* outside, the neuron is said to be in a state of \_\_\_\_\_\_. C, c

 a. equilibrium c. polarization

 b. shock d. depolarization

 34. When a neuron is polarized, \_\_\_\_\_\_. 32

 a. both positive and negative ions are concentrated outside the neural membrane F, b

 b. positive ions are concentrated outside the neural membrane while negative

 ions are concentrated inside the membrane

 c. negative ions are concentrated outside the neural membrane while positive

 ions are concentrated inside the membrane

 d. both positive and negative ions are concentrated inside the neural membrane

 35. When a neuron is polarized, \_\_\_\_\_\_. 32

\*\*\* a. it cannot fire F, b

 b. the electrical charge inside is negative relative to the outside

 c. the electrical charge inside is positive relative to the outside

 d. sodium ions pass freely through the cell membrane

 36. When enough atoms have entered the neuron to make the inside positively charged 32

relative to the outside, the neuron is said to be \_\_\_\_\_\_. C, d

 a. resting c. diffusing

 b. polarized d. depolarized

 37. Another term for a neural impulse is a(n) \_\_\_\_\_\_ potential. 32

 a. resting c. action C, c

 b. graded d. kinetic

 38. The process by which a neuron is depolarized in a surge running down the 32

 length of an axon is called a(n)\_\_\_\_\_\_ potential. C, c

 a. resting c. action

 b. graded d. kinetic

 39. When positively charged ions flow into a neuron and depolarize it, they create \_\_\_\_\_\_. 32

 a. a relative refractory period c. an action potential C, c

 b. breakdown of the cell nucleus d. internal combustion

 4 yr.: 84% r = .31

 40. When sodium ions flow into a neuron and depolarize it, we say the neuron has \_\_\_\_\_\_. 32

 a. been neutralized c. refracted C, d

 b. reached equilibrium d. fired

 2 yr.: 81% r = .11

 41. Which of the following statements is true? 32

\*\*\* a. Signals above the threshold of excitation will prevent a neuron from firing. F, d

 b. The strength (intensity) of a neuron's action potential depends on the strength of

 its excitation.

 c. A neuron fires in response to every message it receives.

 d. Impulses in myelinated neurons may reach speeds of nearly 400 feet per second.

 42. The level a neural impulse must exceed to cause a neuron to fire is called the \_\_\_\_\_\_. 32

 a. polarization limit c. threshold of excitation C, c

 b. kinetic ceiling d. kinetic potential

 43. A frog muscle is stimulated with an electric current but the muscle doesn't twitch. This 32

\*\*\* probably happens because\_\_\_\_\_\_. A, c

 a. the graded potential is too great

 b. the synapses are underactive

 c. the threshold of excitation was not reached

 d. ionic balance has been restored

 44. Every firing of a neuron produces an impulse of the same strength. This is called 32-33

 the \_\_\_\_\_\_. F, b

 a. action potential c. threshold of excitation

 b. all-or-none law d. graded potential

 45. The "all-or-none" law is the principle stating that \_\_\_\_\_\_. 32-33

 a. a neuron must be receiving only “fire” messages through its dendrites or it will not C, c

 fire at all

 b. all the neurons in a particular area of the brain fire simultaneously or not at all

 c. a neuron fires at full strength or not at all

 d. all neurons in an area fire at the same intensity or not at all

 46. The "all-or-none law" refers to the fact that \_\_\_\_\_\_. 32-33

\*\*\* a. all the neurons in a single nerve fire simultaneously or not at all C, c

 b. all the neurons in a particular area of the brain fire simultaneously or not at all

 c. a neuron fires at full strength or not at all

 d. all the dendrites on a neuron must receive messages telling the neuron to fire or it

 will not fire at all

 4 yr.: 97% r = .27

 47. A neuron is likely to fire \_\_\_\_\_\_ when stimulated by a strong signal. 33

 a. more intensely c. in a coded sequence F, d

 b. for a longer period of time d. more often

 48. Which of the following is true of neural impulses in a single neuron? 32-33

\*\*\* a. The neuron may fire during the absolute refractory period. F, d

 b. The strength of the neural impulse increases as the strength of the incoming

 message increases.

 c. The strength of the neural impulse decreases as the strength of the incoming

 message increases.

 d. The strength of the neural impulse is the same each time the neuron fires.

 2 yr.: 53% r = .21

 49. Which of the following statements is true of the activity of neurons? 33

\*\*\* a. The nerve impulse fades in strength as it travels through the neuron. F, c

 b. Transmission of information at synapses occurs by means of direct physical

 contact between the nerve cells.

 c. The size and speed of the neural impulse is the same for a particular axon

 regardless of the strength of the stimulus that sets it off.

 d. None of the above are true.

 4 yr.: 73% r = .14

 50. Immediately after firing, a neuron cannot fire again no matter how strong the incoming 33

\*\*\* messages may be. This period is called the \_\_\_\_\_\_ period. C, a

 a. absolute refractory c. primary refractory

 b. relative refractory d. polarization

 51. The period after firing in which a neuron is returning to its normal polarized state 33

\*\*\* and will fire again only if the incoming message is extremely powerful is the \_\_\_\_\_\_ period. C, b

 a. absolute refractory c. secondary refractory

 b. relative refractory d. recovery

 52. How can the nervous system represent increases in the intensity of a stimulus? 33

\*\*\* a. Only by an increase in the size of the action potential in each neuron that fires. A, d

 b. Only by an increase in the number of neurons being fired.

 c. Only by an increase in the frequency of firing in each neuron.

 d. By increasing the number of neurons firing and the frequency of firing in each neuron.

 4 yr.: 72% r = .22

 53. According to the textbook, which of the following statements is **FALSE**? 30-34

\*\*\* a. The nerve impulse involves the exchange of electrically charged ions across the cell F, d

 membrane.

 b. Within a neuron, information flows from dendrites to cell body to axon.

 c. Some neurons have axons that are several feet long.

 d. Neurons in the central nervous system have myelin sheaths, while those in the

 peripheral nervous system do not.

 4 yr.: 75% r = .29; 4 yr.: 83% r = .22

 54. "Depolarization," "absolute refractory period," and "threshold" are terms that apply 32-33

\*\*\* most directly to \_\_\_\_\_\_. C, d

 a. brain wave patterns (EEGs) c. neural synapses

 b. computerized axial tomography d. action potentials

 55. Which of the following is NOT true of neural impulses? 30-34

\*\*\* a. The neuron fires in response to every impulse it receives. F, a

 b. Neural impulses travel at speeds ranging from 3 feet per second to 400 feet per

 second.

 c. The incoming message must be above a certain threshold to cause a neural impulse.

 d. The neuron may fire during the relative refractory period.

 56. The tiny space between the axon terminal and the dendrite of another neuron is called 33

 the \_\_\_\_\_\_. C, c

 a. synaptic vesicle c. synaptic cleft

 b. synaptic knob d. synapse

 4 yr.: 83% r = .32; 4 yr.: 86% r = .19

 57. The entire area composed of the axon terminal of one neuron, the synaptic cleft, and the 33

\*\*\* dendrite or cell body of the next neuron is called the \_\_\_\_\_\_. C, d

 a. synaptic vesicle c. synaptic space

 b. synaptic knob d. synapse

 2 yr.: 81% r = .34

 58. At the end of each branch of an axon, there is a tiny knob called the \_\_\_\_\_\_. 33

 a. synaptic cleft c. synaptic knob C, c

 b. synaptic vesicle d. receptor site

 59. At the end of each branch of an axon, there is a tiny knob called the \_\_\_\_\_\_. 33

 a. synaptic cleft c. terminal button C, c

 b. synaptic vesicle d. receptor site

 60. When a neural impulse crosses the synaptic space, it does so \_\_\_\_\_\_. 33

 a. like an electric spark C, c

 b. via direct contact between the axon and the dendrite

 c. through chemicals

 d. through some, as yet, unknown process

 61. The action potential causes neurotransmitters to be released into the \_\_\_\_\_\_. 33

\*\*\* a. myelin sheath c. axon F, b

 b. synaptic space d. cell membrane

 62. The tiny sacs in a synaptic knob that release chemicals into the synaptic space 33

are called \_\_\_\_\_\_. C,a

 a. synaptic vesicles c. synaptic nodes

 b. synaptic knobs d. synaptic clefts

***2.2 The Central Nervous System***

 63. The central nervous system consists of \_\_\_\_\_\_. 35

\*\*\* a. the parasympathetic and sympathetic divisions C, b

 b. the brain and spinal cord

 c. muscles and glands

 d. sense organs and sensory neurons

 4 yr.: 83% r = .25

 64. The central nervous system consists of \_\_\_\_\_\_. 35

\*\*\* a. the somatic and autonomic nervous systems C, b

 b. the brain and the spinal cord

 c. all the nerves in the center of the body that take messages from the environment

 and send them to the brain and spinal cord

 d. the sympathetic and parasympathetic divisions, which control the inner or central

 part of the body

 65. The nervous system is comprised of two major parts: \_\_\_\_\_\_. 35

\*\*\* a. the central nervous system and the peripheral nervous system F, a

 b. the afferent nervous system and the efferent nervous system

 c. the sympathetic nervous system and the parasympathetic nervous system

 d. the brain and the spinal cord

 2 yr.: 73% r = .29

 66. The two main components of the human nervous system are the \_\_\_\_\_\_ nervous 35

\*\*\* system and the \_\_\_\_\_\_ nervous system. F, c

 a. somatic; autonomic

 b. sympathetic; parasympathetic

 c. central; peripheral

 d. spinal; endocrine

 4 yr.: 93% r = .17

 67. The division of the nervous system that consists of the brain and spinal cord 35

 is the \_\_\_\_\_\_ system. C, c

 a. peripheral nervous c. central nervous

 b. endocrine d. primary nervous

 68. The central nervous system contains about \_\_\_\_\_\_ percent of the body’s neurons. 35

 a. 10 c. 70 F, d

 b. 30 d. 90

 69. The \_\_\_\_\_\_ is the seat of awareness and reason. 35

 a. brain c. peripheral nervous system C, a

 b. spinal cord d. endocrine system

 70. The brain can be divided into \_\_\_\_\_\_ layers that evolved in different stages of 35

 evolution. F, b

 a. two c. four

 b. three d. five

 71. At the point where the spinal cord enters the skull, it becomes the \_\_\_\_\_\_. 35

 a. limbic system c. midbrain F, b

 b. hindbrain d. forebrain

 72. The \_\_\_\_\_\_ is believed to be the earliest part of the brain that evolved. 35

 a. limbic system c. midbrain F, b

 b. hindbrain d. forebrain

 73. The part of the brain containing the medulla, the pons, and the cerebellum is the 35

 \_\_\_\_\_\_. C, c

 a. limbic system c. hindbrain

 b. cortex d. corpus callosum

 74. The part of the hindbrain that controls such functions as breathing, heart 35

\*\*\* rate, and blood pressure is the \_\_\_\_\_\_. C, c

 a. cerebral cortex c. medulla

 b. pons d. cerebellum

 4 yr.: 79% r = .33; 4 yr.: 84% r = .40

 75. The point at which the nerves from the left side of the body cross over into the right 35

 side of the brain, and vice versa, is the \_\_\_\_\_\_. F, c

 a. amygdala c. medulla

 b. pons d. cerebellum

 76. A college student is having difficulty staying awake during the day and sleeping 35

\*\*\* through the night. Her difficulties are **MOST** likely due to problems in the \_\_\_\_\_\_. A, d

 a. cerebellum c. basal ganglia

 b. substantia nigra d. pons

 2 yr.: 75% r = .32

 77. The structure in the hindbrain that transmits messages to the upper areas of the brain and 35

 produces chemicals that help maintain our wake-sleep cycle is the \_\_\_\_\_\_. C, d

 a. cerebellum c. basal ganglia

 b. substantia nigra d. pons

 78. A young woman recovering from a blow to her head finds she has great difficulty 35

 maintaining her balance and coordinating her movements. Injury to which part of her A, a

 brain is likely to be causing her difficulties?

 a. cerebellum c. cerebral cortex

 b. medulla d. thalamus

 4 yr.: 51% r = .42

 79. The cerebellum \_\_\_\_\_\_. 35

 a. controls blood pressure F, c

 b. is involved in emotional behavior

 c. coordinates actions so that movements are efficient

 d. relays messages from the sensory receptors

 4 yr.: 61% r = .28; 2 yr.: 64% r = .38

 80. The \_\_\_\_\_\_ is located to the rear of the brain stem; it coordinates voluntary movement 35

\*\*\* and controls balance. F, c

 a. medulla c. cerebellum

 b. cerebrum d. limbic system

 81. The part of the hindbrain sometimes called the “little brain” is the \_\_\_\_\_\_. 35

 a. medulla c. cerebellum F, c

 b. cerebrum d. limbic system

 82. Susan has a degenerative disease that causes her to lose her balance easily and to 35

\*\*\* move in a jerky and uncoordinated way. She cannot drink from a glass without spilling it A, c

 or touch her toes without falling over. This disease is probably affecting her \_\_\_\_\_\_.

 a. hypothalamus c. cerebellum

 b. midbrain d. reticular formation

 83. The part of the hindbrain involved in emotional control, attention, memory, and 35

 coordinating sensory information is the \_\_\_\_\_\_. F, c

 a. medulla c. cerebellum

 b. cerebrum d. midbrain

 84. Recent research indicates that disorders such as autism, schizophrenia, and attention 35

 deficit disorder all may be associated with dysfunction in the \_\_\_\_\_\_. F, a

 a. cerebellum c. pons

 b. medulla d. midbrain

 85. The part of the brain where pain is registered and which is important 36

\*\*\* in hearing and sight is the \_\_\_\_\_\_. C, c

 a. medulla c. midbrain

 b. hypothalamus d. reticular formation

 86. The midbrain is largely involved in each of the following functions **EXCEPT** \_\_\_\_\_\_. 36

 a. perception of pain c. hearing F, b

 b. regulation of hunger and thirst d. sight

 87. The structure directly over the brain stem that relays and translates sensory 36

\*\*\* information is the \_\_\_\_\_\_. C, d

 a. hippocampus c. amygdala

 b. hypothalamus d. thalamus

 88. The part of the brain which acts as a switchboard or relay station, sending incoming 36

\*\*\* messages to the appropriate areas of the brain, is the \_\_\_\_\_\_. C, a

 a. thalamus c. pons

 b. hypothalamus d. medulla

 89. The part of the brain that acts like a “thermostat,” regulating hunger, thirst, sexual 37

 drive, and body temperature is the \_\_\_\_\_\_. C, d

 a. hippocampus c. thalamus

 b. amygdala d. hypothalamus

 90. The part of the brain responsible for emotional behavior such as experiencing rage, 37

\*\*\* terror, or pleasure is the \_\_\_\_\_\_. C, d

 a. hippocampus c. thalamus

 b. amygdala d. hypothalamus

 4 yr.: 54% r = .37; 4 yr.: 64% r = .10

 91. Eating, drinking, sexual behavior, sleeping, and temperature control are most strongly 37

\*\*\* influenced by the \_\_\_\_\_\_. C, d

 a. medulla c. pons

 b. amygdala d. hypothalamus

 4 yr.: 83% r = .31; 4 yr.: 87% r = .20

 92. Garfield is having great difficulty controlling his appetite. All he wants to do is eat, and 37

\*\*\* no matter how much he eats, he is still hungry. His weight is approaching 400 pounds and A, d

 he still constantly wants to eat. His physician says the problem is due to a disorder in a

 specific center of the brain. That brain center is **MOST** likely to be the \_\_\_\_\_\_.

 a. amygdala c. thalamus

 b. hippocampus d. hypothalamus

 93. After his last class, Carlos went out to his car to get some books to return to the library. 37

 He found that during the day someone had badly smashed his rear bumper. He was A, b

 furious and began pounding on the hood and shouting obscenities. What area of the

 brain was guiding his behavior?

 a. the thalamus c. the medulla

 b. the hypothalamus d. the midbrain

 2 yr.: 70% r = .35

 94. Darlene just found out that she made the dean's list, and she's in ecstasy -- singing and 37

 dancing down the corridor. Which area of the brain is directing her emotional reaction? A, a

 a. the hypothalamus c. the reticular formation

 b. the thalamus d. the cingulate gyrus

 95. The network of neurons in the hindbrain, midbrain, and part of the forebrain whose 36

 primary function is to alert and arouse the higher parts of the brain is the \_\_\_\_\_\_. C, b

 a. limbic system c. temporal lobe

 b. reticular formation d. endocrine system

 96. The part of the brain that sends "alert" messages to the cerebral cortex is the \_\_\_\_\_\_. 36

\*\*\* a. limbic system c. temporal lobe C, b

 b. reticular formation d. endocrine system

 97. Anesthetics work primarily by shutting down the \_\_\_\_\_\_. 36

\*\*\* a. limbic system c. dopamine receptor sites F, d

 b. endocrine system d. reticular formation

 98. Permanent damage to the reticular formation can cause \_\_\_\_\_\_. 36

 a. hyperactive behavior c. a coma F, c

 b. problems with equilibrium d. nightmares

 99. The part of the brain most people think of when they talk about the brain is the \_\_\_\_\_\_. 37

\*\*\* a. cerebrum c. medulla F, a

 b. pons d. cerebellum

100. The outer surface of the two cerebral hemispheres that regulate most complex behavior 37

 is called the \_\_\_\_\_\_. C, c

 a. cerebellum c. cerebral cortex

 b. corpus callosum d. substantia nigra

101. The \_\_\_\_\_\_ is more highly developed in humans than in any other animal. 37

 a. cerebral cortex c. limbic system F, a

 b. cerebellum d. midbrain

 4 yr.: 70% r = .31; 2 yr.: 61% r = .14

102. The cerebral cortex contains about \_\_\_\_\_\_ percent of the neurons in the human 37

 central nervous system. F, c

 a. 30 c. 70

 b. 50 d. 90

103. The cerebrum accounts for about \_\_\_\_\_\_ percent of the weight of the human brain. 37

 a. 20 c. 60 F, d

 b. 40 d. 80

104. The intricate network of folds -- hills and valleys -- that line the outer surface of 37

 the cerebrum, allowing it to fit inside the skull, are called \_\_\_\_\_\_. C, d

 a. sensory projection areas c. motor projections

 b. association areas d. convolutions

 4 yr.: 39% r = .30

105. Incoming messages are combined into meaningful impressions in the \_\_\_\_\_\_ areas. 37-38

 a. sensory projection c. motor projection F, b

 b. association d. convolution

 4 yr.: 48% r = .29

106. The association areas are to \_\_\_\_\_\_ as the cerebellum is to \_\_\_\_\_\_. 35; 38

\*\*\* a. thinking; motor coordination A, a

 b. interconnection between hemispheres; aggressive behavior

 c. temperature regulation; motor coordination

 d. precise perception; aggressive behavior

107. Messages from separate senses are combined and integrated in the \_\_\_\_\_\_. 37-38

\*\*\* a. sensory projection areas c. association areas F, c

 b. motor projection areas d. midbrain

108. The \_\_\_\_\_\_ lobe accounts for about one-half the volume of the human brain. 38

 a. occipital c. parietal F, d

 b. temporal d. frontal

109. The site of many mental processes that are unique to humans (self-awareness, initiative, 38

\*\*\* planning ability, and goal-directed behavior) is the \_\_\_\_\_\_ lobe. F, d

 a. occipital c. parietal

 b. temporal d. frontal

 4 yr.: 80% r = .27; 2 yr.: 77% r = .45; 2 yr.: 60% r = .42

110. The lobe of the brain that serves as the “executive control center” for the brain is the 38

 \_\_\_\_\_\_ lobe. C, d

 a. occipital c. parietal

 b. temporal d. frontal

111. Messages from the brain to the various muscles and glands in the body begin their 38

\*\*\* journey in the \_\_\_\_\_\_. F, c

 a. sensory projection areas c. primary motor cortex

 b. association areas d. primary somatosensory cortex

112. The section of the frontal lobe responsible for voluntary movement is the \_\_\_\_\_\_. 38

 a. sensory projection areas c. primary motor cortex C, c

 b. association areas d. primary somatosensory cortex

113. The primary motor cortex is located in the \_\_\_\_\_\_ lobe. 38

 a. frontal c. temporal F, a

 b. parietal d. occipital

114. The lobe of the brain most involved in motivation, persistence, emotional responses, 38

 character, and moral decision making is the \_\_\_\_\_\_ lobe. F, d

 a. occipital c. parietal

 b. temporal d. frontal

115. Phineas Gage was a foreman on a railroad crew who suffered brain damage in a blasting 38

 accident. After the accident, he lost interest in his job and had difficulty maintaining any A, d

 goal-directed behaviors. He seemed apathetic and capable of only shallow emotions.

 The damaged part of his brain was probably the \_\_\_\_\_\_ lobe.

 a. occipital c. parietal

 b. temporal d. frontal

 4 yr.: 94% r = .24

116. After an industrial accident in which George fell from a scaffold and hit his head, he has 38

 had trouble following directions or completing his normal work tasks. He is also apathetic, A, a

 although he has periods of boastfulness and silliness. The damaged part of his brain is

 probably the \_\_\_\_\_\_ lobes.

 a. frontal c. parietal

 b. temporal d. occipital

117. The lobe of the cerebral cortex that receives and coordinates messages from the 38

 other three lobes of the cortex is the \_\_\_\_\_\_ lobe. F, d

 a. occipital c. parietal

 b. temporal d. frontal

118. Loss of motivation and ability to concentrate is the major outcome of damage to the 38

 \_\_\_\_\_\_ lobe. F, d

 a. occipital c. parietal

 b. temporal d. frontal

119. The part of the brain that receives and interprets visual information is the \_\_\_\_\_\_ lobe. 38

 a. occipital c. parietal C, a

 b. temporal d. frontal

120. After a head injury a person reports that she is unable to see, although her eyes are 38

\*\*\* uninjured. A doctor would suspect an injury in the \_\_\_\_\_\_ lobe. A, b

 a. frontal c. parietal

 b. occipital d. temporal

121. The part of the cerebral cortex that receives sensory information from throughout the 39

 body from sense receptors in the skin, muscles, joints and internal organs is the \_\_\_\_\_\_ lobe. F, c

 a. occipital c. parietal

 b. temporal d. frontal

122. Corey was in an automobile accident that resulted in an injury to her brain. She now has 38

 difficulty reading road maps and telling other people how to get somewhere. She has A, c

 most likely suffered an injury to her \_\_\_\_\_\_ lobe.

 a. occipital c. parietal

 b. temporal d. frontal

123. Messages from the sense receptors are registered in those areas of the brain called 39

 the \_\_\_\_\_\_. F, a

 a. primary somatosensory cortex c. motor projection areas

 b. association areas d. hemispheric lateralization areas

124. The primary somatosensory cortex is located in the \_\_\_\_\_\_ lobe. 39

 a. occipital c. parietal F, c

 b. temporal d. frontal

125. The part of the brain that helps regulate hearing, balance and equilibrium, certain 38

\*\*\* emotions and motivation, and recognizing faces is the \_\_\_\_\_\_ lobe. C, b

 a. occipital c. parietal

 b. temporal d. frontal

126. The lobe of the brain that regulates emotions and motivations such as anxiety, pleasure, 38-39

 and anger is the \_\_\_\_\_\_ lobe. C, b

 a. occipital c. parietal

 b. temporal d. frontal

127. The loosely connected ring of structures between the central core and the cerebral 36-37

 hemispheres that control emotion and is involved in the formation of new memories is C, a

 the \_\_\_\_\_\_.

 a. limbic system c. pons

 b. reticular formation d. endocrine system

128. The limbic system is responsible for \_\_\_\_\_\_. 37

 a. filtering incoming messages to the brain F, d

 b. connecting the brain to the rest of the body

 c. fighting disease organisms that attempt to infect the brain

 d. controlling learning and emotional behavior

129. The limbic system includes the hypothalamus, the hippocampus, and the \_\_\_\_\_\_. 37

 a. amygdala c. medulla F, a

 b. reticular formation d. pons

130. George was in an automobile accident several years ago in which he suffered severe 37

\*\*\* head injuries. Since the mishap, he has been unable to form new memories. He can A, a

 remember everything he did before the accident but he cannot remember what he just

 said five minutes ago. The part of George's brain that was injured was probably the \_\_\_\_\_\_.

 a. hippocampus c. reticular formation

 b. brain stem d. spinal cord

131. The thick bundle of nerves connecting the two cerebral hemispheres which 39

 coordinates their activities is the \_\_\_\_\_\_. C, a

 a. corpus callosum c. caudate nucleus

 b. substantia nigra d. reticular formation

132. In some cases of severe epilepsy surgeons cut the \_\_\_\_\_\_ to stop the spread of 39-40

 epileptic seizures from one hemisphere to the other. F, d

 a. medulla c. reticular formation

 b. hypothalamus d. corpus callosum

 4 yr.: 78% r = .31; 4 yr.: 93% r = .05; 2 yr.: 81% r = .37

133. "Split brain" patients are patients who have had \_\_\_\_\_\_. 39-40

 a. a prefrontal lobotomy C, c

 b. their cerebellum split in the middle

 c. their corpus callosum cut

 d. their brain stem cut down the middle

 4 yr.: 88% r = .19

134. A "split-brain” patient is asked to stare at a spot on a screen. When a picture of an object 40

\*\*\* is shown to the **RIGHT** of the spot, the patient can \_\_\_\_\_\_. A, a

 a. identify the object verbally and pick it out of a group of hidden objects using her

 right hand

 b. identify the object verbally and pick it out of a group of hidden objects using her left

 hand

 c. pick the object out of a group of hidden objects using her left hand, but cannot

 identify it verbally

 d. pick the object out of a group of hidden objects using her right hand, but cannot

 identify it verbally

 4 yr.: 28% r = .25

135. A "split brain" patient is asked to stare at a spot on a screen. When a picture of an object 40

\*\*\* is shown to the **LEFT** of the spot, the patient can \_\_\_\_\_\_. A, c

 a. identify the object verbally and pick it out of a group of hidden objects using her

 right hand

 b. identify the object verbally and pick it out of a group of hidden objects using her left

 hand

 c. pick the object out of a group of hidden objects using her left hand, but cannot

 identify it verbally

 d. pick the object out of a group of hidden objects using her right hand, but cannot

 identify it verbally

 4 yr.: 19% r = .15

136. Split‑brain patients who are shown objects in such a way that the visual information 40

\*\*\* goes only to the right hemisphere of the brain \_\_\_\_\_\_. A, c

 a. can name the objects, but cannot point to them with their right hand

 b. can name the objects and can point to them with their right hand

 c. cannot name the objects, but can point to them with their right hand

 d. can neither name the objects nor point to them with their right hand

 4 yr.: 82% r = .22; 4 yr.: 80% r = .22

137. Split‑brain patients who are shown objects in such a way that the visual information 40

\*\*\* goes only to the left hemisphere of the brain \_\_\_\_\_\_. A, a

 a. can name the objects, but cannot point to them with their left hand

 b. can name the objects and can point to them with their left hand

 c. cannot name the objects, but can point to them with their left hand

 d. can neither name the objects nor point to them with their left hand

138. Which hemisphere of the cerebral cortex is usually dominant in language tasks? 40

 a. the front hemisphere c. the left hemisphere F, c

 b. the rear hemisphere d. the right hemisphere

 4 yr.: 81% r = .24; 2 yr.: 58% r = .30

139. The fact that language is usually related most closely to the left hemisphere explains 40

\*\*\* why \_\_\_\_\_\_. F, c

 a. the left hemisphere is usually larger than the right

 b. stroke victims with paralysis on the left side of the body may have severe speech

 problems

 c. damage to the left hemisphere may cause language disorders

 d. the right hemisphere is usually larger than the left

 4 yr.: 50% r = .13

140. Language is processed primarily in the left hemisphere \_\_\_\_\_\_. 40

 a. only in right-handers F, d

 b. only in left-handers

 c. in most right-handers but only a few left-handers

 d. in the majority of right-handers and left-handers

141. Which hemisphere of the cerebral cortex is usually dominant in spatial tasks? 40

 a. the front hemisphere c. the left hemisphere F, d

 b. the rear hemisphere d. the right hemisphere

 4 yr.: 71% r = .35

142. A baby is born with an impairment of his left cerebral hemisphere, but it is 40

 not discovered until years later, when certain clues are pieced together. A, c

 Which of the following is **MOST** likely to be one of those clues?

 a. He has difficulty perceiving concepts and spatial relationships.

 b. He has difficulty with geometry.

 c. He has difficulty learning to read.

 d. He has difficulty recognizing people's faces.

 2 yr.: 45% r = .34

143. A baby is born with an impairment in her right cerebral hemisphere, but it 40

\*\*\* is not discovered until years later, when certain clues are pieced together. A, b

 Which of the following is **LEAST** likely to be one of those clues?

 a. She has difficulty perceiving spatial relationships.

 b. She has severe language problems.

 c. She has trouble understanding the meaning of a story that is read to her.

 d. She has trouble picking up objects with her left hand.

144. The hemisphere that specializes in analyzing sequences and details is the\_\_\_\_\_\_ 40

 hemisphere. F, c

 a. front c. left

 b. rear d. right

145. The hemisphere that specializes in holistic processing is the \_\_\_\_\_\_ hemisphere. 40

 a. front c. left F, d

 b. rear d. right

146. The hemisphere most involved in preserving one’s sense of identity or “self” is the\_\_\_\_\_\_ 40

 hemisphere. F, d

 a. front c. left

 b. rear d. right

147. Broca and Wernicke are most well known for studying how the brain processes \_\_\_\_\_\_. 40

 a. pain c. spatial information F, b

 b. language d. abstract information

148. The notion that human language is primarily controlled by the left hemisphere was first 40

 set forth by \_\_\_\_\_\_. F, a

 a. Broca c. Gall

 b. Wernicke d. Korsakoff

149. Simply put, Broca’s area is important for \_\_\_\_\_\_, and Wernicke’s area is important 40

 for \_\_\_\_\_\_. F, c

 a. listening; listening c. talking; listening

 b. listening; talking d. talking; talking

150. Amy has suffered damage to Broca’s area in her brain. She is most likely to exhibit 40

 \_\_\_\_\_\_ aphasia. A, a

 a. expressive c. occlusive

 b. inclusive d. receptive

151. Mary has suffered damage to Wernicke’s area in her brain. She is most likely to exhibit 40

 \_\_\_\_\_\_ aphasia. A, d

 a. expressive c. occlusive

 b. inclusive d. receptive

152. The production of new brain cells is called \_\_\_\_\_\_. 41

 a. brain stimulation c. aphasia F, b

 b. neurogenesis d. synaptic growth

153. M. R. Rosenzweig examined rats by studying the \_\_\_\_\_\_. 41

 a. behavioral effects of lesions in different parts of their brains F, c

 b. sexual orientation effects of prenatal exposure to maternal hormones

 c. effects on their brains of exposure to impoverished or enriched environments

 d. effects on their brains of electrical stimulation to the frontal and parietal lobes

154. Rosenzweig’s study found that when compared to rats raised in an impoverished 41

 environment, rats raised in an enriched environment had \_\_\_\_\_\_ neurons with \_\_\_\_\_\_ F, d

 synaptic connections.

 a. smaller; fewer c. larger; fewer

 b. smaller; more d. larger; more

155. In recent research, Rosenzweig found that a stimulating environment results in larger 41

 neurons with more synaptic connections \_\_\_\_\_\_. F, d

 a. only in infant rats c. only in mature rats

 b. only in adolescent rats d. in rats of any age

156. The ability of the brain to change in response to experience is called \_\_\_\_\_\_. 41

 a. neurogenesis c. reticular formation C, d

 b. neural plasmosis d. neural plasticity

157. Each of the following is true **EXCEPT** \_\_\_\_\_\_. 41

 a. plasticity in the brain is limited to changes that affect only motor behaviors F, a

 b. in deaf people, an area of the brain usually responsible for hearing rewires itself to

 read lips and sign language

 c. experience causes changes in the strength of communication across synapses

 d. in blind people, the area of the brain normally responsible for vision reorganizes

 to respond to touch and hearing

158. The process in which new brain cells are generated is known as \_\_\_\_\_\_. 41

 a. plasmosis c. neural plasticity F, b

 b. neurogenesis d. reticular formation

159. Traditionally, injuries to the spinal cord have been considered \_\_\_\_\_\_. 41

 a. temporary c. permanent F, c

 b. treatable d. fatal

160. The discovery of \_\_\_\_\_\_has widespread implications for treating neurological 41

 disorders. F, b

 a. plasmosis c. neural plasticity

 b. neurogenesis d. the reticular formation

161. \_\_\_\_\_\_ techniques are used to study the functions of single neurons. 42

 a. Macroelectrode c. Structural imaging C, b

 b. Microelectrode d. Functional imaging

162. Microelectrode techniques are used to \_\_\_\_\_\_. 42

 a. study single neurons C, a

 b. study overall activity in particular regions of the brain

 c. map structures in the living brain

 d. observe neural activity as it reacts to sensory stimuli

163. A technique in which a tiny quartz or glass pipette (smaller in diameter than a human hair) 42

 that is filled with conducting fluid and placed on the surface of a neuron so that scientists C, c

 can study changes in the electrical conditions of that particular neuron is called \_\_\_\_\_\_.

 a. a macroelectrode technique

 b. structural imaging

 c. a microelectrode recording technique

 d. functional imaging

164. \_\_\_\_\_\_ techniques are used to obtain an overall picture of activity in particular regions 42

 of the brain. C, a

 a. Macroelectrode c. Structural imaging

 b. Microelectrode d. Functional imaging

165. Macroelectrode techniques are used to \_\_\_\_\_\_. 42

 a. study single neurons C, b

 b. study overall activity in particular regions of the brain

 c. map structures in the living brain

 d. observe neural activity as it reacts to sensory stimuli

166. The first window into the electrical activity of a living brain was \_\_\_\_\_\_. 42

 a. CAT scanning c. MRI F, d

 b. MEG d. the EEG

167. Which of the following is a type of macroelectrode technique? 42

 a. CAT scanning c. MRI C, b

 b. EEG d. MEG

168. If you wanted to measure various brain waves, which of the following techniques 42

 should you use? A, a

 a. a macroelectrode technique c. functional imaging

 b. a microelectrode technique d. structural imaging

169. A technique in which more than two dozen electrodes are placed at important locations 42

 on the scalp and they then record the brain’s electrical activity in a way that is converted C, d

 by a computer into colored images on a TV screen and used to detect abnormal cortical

 activity such as that occurring during an epileptic seizure is \_\_\_\_\_\_.

 a. magnetic resonance imaging (MRI)

 b. magnetoencephalography (MEG)

 c. positron emission tomography (PET) scanning

 d. electroencephalography (EEG) imaging

170. When brain researchers want to map the structures in a living human brain, they turn to 42

 \_\_\_\_\_\_. C, c

 a. macroelectrode techniques c. structural imaging

 b. microelectrode techniques d. functional imaging

171. Structural imaging techniques are used to \_\_\_\_\_\_. 42

 a. study single neurons C, c

 b. study overall activity in particular regions of the brain

 c. map structures in the living brain

 d. observe neural activity as it reacts to sensory stimuli

172. When brain researchers want to map the structures in a living human brain, they use 42

 \_\_\_\_\_\_. C, b

 a. an EEG c. EEG imaging

 b. a CAT scan or an MRI d. MEG or MSI

173. A technique in which an X-ray photography unit rotates around a patient, moving from 42

 the top of the head to the bottom, creating a series of images that are combined by a C, c

 computer to produce pictures of the inner regions of the brain is called \_\_\_\_\_\_.

 a. magnetic resonance imaging (MRI)

 b. EEG imaging

 c. computerized axial tomography scanning (CAT scanning)

 d. magnetic source imaging (MSI)

174. Which of the following would provide the best map of physical structures 42

 in the brains of living human beings? F, a

 a. magnetic resonance imaging (MRI)

 b. magnetoencephalography (MEG)

 c. positron emission tomography (PET) scanning

 d. electroencephalography (EEG) imaging

175. The brain scanning technique that offers the most hope for understanding 42

 disorders such as amnesia and dyslexia is \_\_\_\_\_\_. A, b

 a. magnetic resonance imaging (MRI)

 b. magnetoencephalography (MEG)

 c. positron emission tomography (PET) scanning

 d. electroencephalography (EEG) imaging

176. Each of the following is a functional imaging technique **EXCEPT** \_\_\_\_\_\_. 43

 a. magnetic source imaging (MSI) C, c

 b. positron emission tomography (PET) scanning

 c. magnetic resonance imaging (MRI)

 d. magnetoencephalography (MEG)

177. The brain scanning technique that offers the most hope for understanding 43

 disorders such as amnesia and dyslexia is \_\_\_\_\_\_. A, b

 a. magnetic resonance imaging (MRI)

 b. magnetic source imaging (MSI)

 c. positron emission tomography (PET) scanning

 d. electroencephalography (EEG) imaging

178. A brain imaging technique that uses radioactive energy to map brain activity is \_\_\_\_\_\_. 43

 a. magnetic source imaging (MSI) C, b

 b. positron emission tomography (PET) scanning

 c. magnetic resonance imaging (MRI)

 d. magnetoencephalography (MEG)

179. A brain imaging technique that measures the movement of blood molecules in the brain 43

 is \_\_\_\_\_\_. C, c

 a. magnetic resonance imaging (MRI)

 b. positron emission tomography (PET) scanning

 c. functional magnetic resonance imaging (fMRI)

 d. magnetoencephalography (MEG)

180. An imaging technique that has been useful in helping researchers discover the biological 43

 origins of attention-deficit hyperactivity disorder is \_\_\_\_\_\_. C, c

 a. magnetic source imaging (MSI)

 b. positron emission tomography (PET) scanning

 c. functional magnetic resonance imaging (fMRI)

 d. magnetoencephalography (MEG)

181. Functional imaging techniques are used to \_\_\_\_\_\_. 43

 a. study single neurons C, c

 b. study overall activity in particular regions of the brain

 c. map structures in the living brain

 d. observe neural activity as it reacts to sensory stimuli

182. The cable of nerves that connects the brain to the rest of the body is called 44

 the \_\_\_\_\_\_. C, d

 a. caudate nucleus c. reticular formation

 b. substantia nigra d. spinal cord

 4 yr.: 94% r = .23; 2 yr.: 92% r = .33

183. The spinal cord is made up of soft, jellylike bundles of long \_\_\_\_\_\_. 44

 a. axons c. ligaments C, a

 b. dendrites d. tendons

184. The spinal cord contains \_\_\_\_\_\_major neural pathway(s). 44

 a. one c. three F, b

 b. two d. four

185. The spinal cord contains each of the following **EXCEPT** \_\_\_\_\_\_. 44

 a. endocrine glands to regulate hormonal functions F, a

 b. motor neurons that control internal organs and muscles

 c. sensory neurons that carry information from the internal organs to the brain

 d. neural circuits that produce reflex movements

186. When you pull your hand away rapidly after burning it on a hot pan, the sequence of 44

 neural activation is \_\_\_\_\_\_. F, c

 a. sensory neurons, motor neurons, interneurons

 b. motor neurons, interneurons, sensory neurons

 c. sensory neurons, interneurons, motor neurons

 d. interneurons, sensory neurons, motor neurons

187. Allan gingerly puts his fingertips on the hot handle of the skillet in which he's cooking 44

\*\*\* supper, but he instantly pulls his hand away. His reaction is due to the functioning of A, c

 the \_\_\_\_\_\_.

 a. limbic system c. spinal cord

 b. medulla d. hypothalamus

188. Neurons that carry messages from the sense organs to the spinal cord or the brain are 44

 called \_\_\_\_\_\_ neurons. C, c

 a. sensory c. afferent

 b. inter- d. efferent

189. Neurons that carry messages from the spinal cord or the brain to the muscles and 44

 glands are called \_\_\_\_\_\_ neurons. C, d

 a. sensory c. afferent

 b. inter- d. efferent

190. A young woman returns from a day at the beach to find she has developed a severe 44

\*\*\* sunburn. Which neurons are sending messages from her burned skin to her brain A, a

 informing her of the pain from the burn?

 a. afferent neurons c. interactive neurons

 b. efferent neurons d. motor neurons

191. Neurons that send messages from the spinal cord to the foot do so through \_\_\_\_\_\_ neurons. 44

\*\*\* a. afferent c. efferent F, c

 b. sensory d. secondary

192. A young man reads in a letter that he has just won $1,000 in a state‑wide lottery and 44

\*\*\* he literally jumps for joy. Which neurons are sending messages from his brain to the A, b

 muscles in his legs causing him to jump?

 a. afferent neurons c. interactive neurons

 b. efferent neurons d. sensory neurons

***2.3 The Peripheral Nervous System***

193. The peripheral nervous system consists of the \_\_\_\_\_\_and the \_\_\_\_\_ nervous systems. 45

\*\*\* a. somatic: autonomic c. sympathetic; parasympathetic F, a

 b. afferent; efferent d. central; reflex

 4 yr.: 41% r = .22; 2 yr.: 53% r = .41

194. The division of the nervous system that connects the brain and spinal cord to 45

 the rest of the body is the \_\_\_\_\_\_ system. C, a

 a. peripheral nervous c. central nervous

 b. endocrine d. secondary nervous

195. Structurally, the nervous system has \_\_\_\_\_\_ major parts. 45

 a. two c. four F, a

 b. three d. five

196. All nerve cells and fibers that are **NOT** in the brain or spinal cord make up the \_\_\_\_\_\_ 45

\*\*\* nervous system. C, b

 a. central c. autonomic

 b. peripheral d. sympathetic

197. The autonomic nervous system consists of \_\_\_\_\_\_. 45

 a. the parasympathetic and sympathetic divisions C, a

 b. the brain and spinal cord

 c. muscles and glands

 d. sense organs and sensory neurons

198. The branch of the nervous system which transmits to the brain information about body 45

 movements and the external environment is the \_\_\_\_\_\_ nervous system. C, c

 a. central c. somatic

 b. autonomic d. tertiary

199. The branch of the nervous system which transmits information to and from the internal 45

 organs and glands is the \_\_\_\_\_\_ nervous system. C, b

 a. central c. somatic

 b. autonomic d. tertiary

200. The sympathetic and parasympathetic divisions are part of the \_\_\_\_\_\_ nervous system. 45

 a. central c. tertiary C, d

 b. somatic d. autonomic

201. The \_\_\_\_\_\_ nervous system links the brain and spinal cord to the rest of the body. 45

 a. central c. peripheral F, c

 b. generic d. tertiary

202. The peripheral nervous system is composed of \_\_\_\_\_\_ neurons. 45

 a. neither afferent nor efferent F, d

 b. afferent, but not efferent

 c. efferent, but not afferent

 d. both afferent and efferent

203. The peripheral nervous system consists of \_\_\_\_\_\_. 45

 a. all the nerve cells that are not in the brain and spinal cord F, a

 b. the brain and the spinal cord

 c. the spinal cord and autonomic system

 d. the brain and the autonomic system

 4 yr.: 67% r = .31

204. The somatic and autonomic nervous systems are two major divisions of the 45

 \_\_\_\_\_\_ nervous system. F, a

 a. peripheral c. sympathetic

 b. parasympathetic d. central

 4 yr.: 73% r = .48

205. All the things that we can sense (sights, sounds, smells, temperature, taste, 45

\*\*\* and pressure) have their origins in the \_\_\_\_\_\_ nervous system. A, b

 a. autonomic c. central

 b. peripheral d. secondary

206. Every deliberate action you make, from pedaling a bike to scratching a toe, involves 45

 neurons in the \_\_\_\_\_\_ nervous system. F, c

 a. sympathetic c. somatic

 b. parasympathetic d. secondary

207. The \_\_\_\_\_\_ nervous system is composed of all the neurons that carry messages 45

 between your brain and all of the internal organs of your body. F, d

 a. central c. somatic

 b. secondary d. autonomic

208. The process of digesting your last snack or meal or the unconscious regulation of your 45

 breathing are all primarily rooted in the \_\_\_\_\_\_ nervous system. F, a

 a. autonomic c. somatic

 b. limbic d. secondary

209. The autonomic nervous system has two divisions: \_\_\_\_\_\_. 45

\*\*\* a. central and peripheral c. sympathetic and parasympathetic F, c

 b. receptors and effectors d. limbic and endocrine

 4 yr.: 79% r = .35

210. The branch of the autonomic nervous system that prepares the body for quick 45-46

 action in an emergency is the \_\_\_\_\_\_ division. C, c

 a. central c. sympathetic

 b. secondary d. parasympathetic

211. The branch of the autonomic nervous system that calms and relaxes the body is the 46

 \_\_\_\_\_\_ division. C, d

 a. central c. sympathetic

 b. secondary d. parasympathetic

212. You're walking all alone down a dark street when, suddenly, you hear a scream and 45

\*\*\* then footsteps coming closer and closer. Your heart begins to pound, you're scared A, c

 stiff, and you feel like running. Which part of the nervous system causes your body's

 reaction?

 a. the midbrain c. the autonomic nervous system

 b. the somatic nervous system d. the hippocampus

 4 yr.: 72% r = .25

213. It's midnight and you are alone in your room studying. You hear a loud crash outside 45-46

 your room and your whole body reacts instantly. Your pupils dilate, your heart rate A, c

 increases, your blood pressure rises, adrenaline surges through your body, and your

 senses sharpen as you begin anxiously looking for whatever caused the crash. These

 reactions are produced by the \_\_\_\_\_\_.

 a. central nervous system c. sympathetic division

 b. somatic nervous system d. parasympathetic division

 4 yr.: 69% r = .31; 2 yr.: 83% r = .35

214. It's midnight and you are alone in your room studying. You hear a loud crash outside 46

 your room. Your body instantly reacts to this potential threat as you feel your heart A, d

 pounding and your senses sharpening. Then you see your lumbering English sheep

 dog walking around the hallway corner and realize that the crash was undoubtedly from

 something he knocked over. Recovering from your alarm, your body now relaxes and

 you return to normal. The body system helping you to return to normal is the \_\_\_\_\_\_ .

 a. somatic nervous system c. sympathetic division

 b. spinal cord d. parasympathetic division

215. The deer waits motionlessly, hidden in the thicket as the band of hunters approaches. 45-46

\*\*\* As they get closer, their dogs bark, picking up the scent of their prey. In a futile effort A, a

 to escape, the deer bolts. Which of the following most accurately describes the nervous

 system of the hunted deer at this point?

 a. Its sympathetic nerve fibers are more active than its parasympathetic nerve fibers.

 b. Its parasympathetic nerve fibers are more active than its sympathetic nerve fibers.

 c. Both its sympathetic and parasympathetic nerve fibers are equally active.

 d. Neither its sympathetic nor its parasympathetic nerve fibers are aroused.

216. The heavy footsteps on the stairs get closer and closer. Slowly, the door to the 45-46

\*\*\* bedroom creaks open. As a strange man with a knife in his hand lunges in, you let out A, a

 an ear‑piercing scream. Which of the following most accurately describes your nervous

 system at this point?

 a. Your sympathetic nervous system is more active than your parasympathetic nervous

 system.

 b. Your parasympathetic nervous system is more active than your sympathetic nervous

 system.

 c. Both your sympathetic and your parasympathetic nervous systems are extremely

 active.

 d. Neither your sympathetic nor your parasympathetic nervous systems are unusually

 active.

 4 yr.: 76% r = .36; 4 yr.: 79% r = .48

217. Traditionally, \_\_\_\_\_\_ been considered automatic. 45

 a. neither the sympathetic nor the parasympathetic division has F, d

 b. the sympathetic division, but not the parasympathetic division, has

 c. the parasympathetic division, but not the sympathetic division, has

 d. both the sympathetic and the parasympathetic division have

218. Studies in the 1960s and 1970s showed that humans and animals have \_\_\_\_\_\_ control 46

 over the autonomic nervous system. F, b

 a. no c. almost complete

 b. some d. complete

***2.4 The Endocrine System***

219. Regarding the two communication systems that integrate and coordinate behavior, the 47

\*\*\* nervous system and the endocrine system, \_\_\_\_\_\_. F, d

 a. these systems work independently of one another; one uses neurons, the other

 the bloodstream

 b. the nervous system can influence the activity of the hormonal system

 c. the hormonal system can influence the activity of the nervous system

 d. these systems influence each other’s activities

 4 yr.: 72% r = .17

220. The system which coordinates and integrates behavior by secreting 47

\*\*\* chemicals into the bloodstream is called the\_\_\_\_\_\_ system. C, d

 a. somatic c. limbic

 b. autonomic d. endocrine

221. Chemical substances released by the endocrine glands to help regulate bodily 47

 functions are \_\_\_\_\_\_. C, d

 a. enzymes c. antigens

 b. neurotransmitters d. hormones

222. The messages in the nervous system are carried through nerves; the messages in the 47

\*\*\* endocrine system are carried through \_\_\_\_\_\_. C, d

 a. ducts c. the somatic system

 b. glands d. the bloodstream

 4 yr.: 70% r = .25

223. Endocrine glands are glands that secrete \_\_\_\_\_\_. 47

 a. excitory neurotransmitters c. hormones F, c

 b. inhibitory neurotransmitters d. enzymes

224. The glands that secrete hormones directly into the bloodstream are called \_\_\_\_\_\_ glands. 47

\*\*\* a. lymph c. hippocampal C, d

 b. exocrine d. endocrine

225. The chemicals responsible for such things as differences in vitality among people, 47

 rates of metabolism, sexual development, preparation for pregnancy and childbirth, C, b

 and emotional balances in general are called \_\_\_\_\_\_.

 a. neurotransmitters c. antigens

 b. hormones d. enzymes

226. Which of the following statements about the endocrine system is **FALSE**? 47

\*\*\* a. Its messages stimulate only a limited number of cells at a time. F, a

 b. It relays information through chemical messengers called hormones.

 c. It communicates its messages at a slower speed than the nervous system.

 d. It plays an important role in the body's response to stressful situations.

 4 yr.: 67% r = .19; 4 yr.: 68% r = .19; 4 yr.: 65% r = .27

227. Which of the following does not belong biologically with the other four? 47

\*\*\* a. pituitary c. pineal C, b

 b. thalamus d. adrenal cortex

 4 yr.: 80% r = .27

228. The endocrine gland that is often called the “master gland” because it affects the 47

 output of the other endocrine glands is the \_\_\_\_\_\_ gland. C, a

 a. pituitary c. pineal

 b. adrenal d. thyroid

229. The \_\_\_\_\_\_ influences blood pressure, thirst, contractions of the uterus during 47

 childbirth, milk production, sexual behavior and interest, and body growth. F, d

 a. pancreas c. thyroid gland

 b. pineal gland d. pituitary gland

230. The gland that produces the largest number of different hormones and has the widest 47

 range of effects on the body’s functions is the \_\_\_\_\_\_ gland. F, a

 a. pituitary c. pineal

 b. adrenal d. thyroid

 4 yr.: 61% r = .24; 2 yr.: 76% r = .23; 2 yr.: 79% r = .47

231. The pea-sized gland that is located on the underside of the brain and is connected to the 47

hypothalamus is the \_\_\_\_\_\_ gland. F, b

 a. adrenal c. pineal

 b. pituitary d. thyroid

232. The endocrine gland located below the voice box that produces the hormone for 47

 regulating the body's rate of metabolism is the \_\_\_\_\_\_ gland. C, c

 a. pituitary c. thyroid

 b. adrenal d. parathyroid

233. An underactive thyroid gland can cause \_\_\_\_\_\_. 47

 a. excitability c. agitation F, c

 b. fatigue d. insomnia

234. Gloria's friends have recently noticed a startling change in her behavior. She eats 47

\*\*\* everything in sight but gains little, if any, weight. She speeds around the room as if A, c

 she were taking amphetamines. She seems constantly tense and agitated, and has

 trouble sleeping. She has become impulsive and lately she seems to be upset by even

 the slightest stress. The source of Gloria's problems is probably an \_\_\_\_\_\_ gland.

 a. overactive pituitary c. overactive thyroid

 b. underactive pituitary d. underactive thyroid

235. Andrew's friends have noticed that lately he sleeps constantly but is always tired and 47

\*\*\* complains of feeling too hot or too cold. Although Andrew had formerly been very A, d

 athletic, lately his muscle tone has been greatly reduced. The source of Andrew’s

 problem is probably an \_\_\_\_\_\_ gland.

 a. overactive pituitary c. overactive thyroid

 b. underactive pituitary d. underactive thyroid

 4 yr.: 98% r = .25; 2 yr.: 77% r = .23

236. \_\_\_\_\_\_ problems are often misdiagnosed as depression or “problems in living.” 47

 a. Pituitary c. Pineal F, b

 b. Thyroid d. Pancreatic

237. The \_\_\_\_\_\_ affect the body's reaction to stress. 47

 a. adrenal glands c. parathyroid glands F, a b. gonads d. lymph glands

238. The endocrine glands located just above the kidneys that release hormones 47

 important for dealing with stress are the \_\_\_\_\_\_. C, b

 a. gonads c. parathyroid glands

 b. adrenal glands d. pituitary glands

 4 yr.: 82% r = .38; 2 yr.: 67% r = .29

239. The adrenal glands are important in your body's reaction to \_\_\_\_\_\_. 47

 a. stress c. digestion F, a

 b. sleep d. pleasurable fantasy

240. Each adrenal gland has \_\_\_\_\_\_ part(s). 47

 a. one c. three F, b

 b. two d. four

241. The outer covering of the two adrenal glands that releases hormones important 47

 for dealing with stress is the adrenal \_\_\_\_\_\_. C, a

 a. cortex c. medulla

 b. simplex d. ganglia

242. You are walking down the street when you see a professor to whom you owe an 47-48

\*\*\* overdue paper. As you approach each other you realize there is no graceful escape. A, b

 You begin to notice your heart pounding, a cold sweat on your hands, and a knot in

 your stomach as the stress of the situation takes hold. Your reactions are **MOST** likely

 due to the activity of the \_\_\_\_\_\_.

 a. gonads c. thyroid gland

 b. adrenal glands d. pituitary gland

243. The inner core of the two adrenal glands that releases hormones important for 47

 dealing with stress is the adrenal \_\_\_\_\_\_. C, c

 a. cortex c. medulla

 b. simplex d. ganglia

244. The \_\_\_\_\_\_secrete hormones that traditionally have been classified as masculine 48

 or feminine. F, b

a. kidneys c. adrenal glands

 b. gonads d. endocrine glands

245. The testes secrete \_\_\_\_\_\_and the ovaries secrete \_\_\_\_\_\_. 48

 a. norepinephrine/epinephrine c. estrogens/androgens F, d b. epinephrine/norepinephrine d. androgens/estrogens

246. At puberty, the\_\_\_\_\_ trigger the development of secondary sex characteristics. 48

 a. adrenal glands c. gonads F, c

 b. endocrine glands d. lymph glands

247. The gonads are \_\_\_\_\_\_. 48

 a. secondary sexual characteristics C, d

 b. the reproductive glands in males, but not in females

 c. the reproductive glands in females, but not in males

 d. the reproductive glands in males and females

248. Masculine sex hormones are called \_\_\_\_\_\_. 48

 a. endorphins c. estrogens C, b

 b. androgens d. enkaphalins

249. Feminine sex hormones are called \_\_\_\_\_\_. 48

 a. endorphins c. estrogens C, c

 b. androgens d. enkaphalins

250. The testes and the ovaries are \_\_\_\_\_\_. 48

 a. adrenal glands c. thyroid glands C, d

 b. pineal glands d. gonads

251. \_\_\_\_\_\_ has long been linked to aggressive behavior. 48

 a. Thyroxin c. Melatonin F, d

 b. Progesterone d. Testosterone

***2.5*** ***Genes, Evolution, and Behavior***

252. \_\_\_\_\_\_ was one of the first to recognize the impact of heredity upon such 49

 psychological characteristics as intelligence, personality, and mental illness. F, b

 a. Rosenzweig c. Wernicke

 b. Darwin d. Broca

253. The study of the relationship between heredity and behavior is \_\_\_\_\_\_. 49

 a. evolutionary psychology c. behavior genetics C, c

 b. psychobiology d. psychoneuroendocrinology

254. The subfield of psychology concerned with the origins of behaviors and mental 54

 processes, their adaptive value, and the purposes they continue to serve is \_\_\_\_\_\_. C, a

 a. evolutionary psychology c. behavior genetics

 b. psychobiology d. psychoneuroendocrinology

255. The study of how plants, animals, and people pass traits from one generation to the 50

 next is called \_\_\_\_\_\_. C, d

 a. heredity c. epidemiology

 b. trait theory d. genetics

256. The basic elements of heredity that control the transmission of traits are \_\_\_\_\_\_. 50

 a. genes c. cells C, a

 b. chromosomes d. proteins

257. Pairs of tiny threadlike bodies that contain genes and line up within a cell's nucleus are 50

 \_\_\_\_\_\_. F, d

 a. riboplasts c. vesicles

 b. proteins d. chromosomes

258. Human beings have \_\_\_\_\_\_ pairs of chromosomes. 50

 a. 12 c. 23 F, c

 b. 17 d. 46

 4 yr.: 95% r = .19; 2 yr.: 86% r = .31

259. \_\_\_\_\_\_ gave modern genetics its beginnings when he reported the results of his work 50

 breeding peas. F, b

 a. Darwin c. Watson

 b. Mendel d. Galton

260. The founder of behaviorism, \_\_\_\_\_\_, challenged the concept of inheritance of behavioral 50

 traits. F, c

 a. Darwin c. Watson

 b. Mendel d. Galton

261. The main ingredient found in chromosomes and genes is \_\_\_\_\_\_. 50

 a. plasma c. water F, b

 b. DNA d. RNA

262. The complex molecule that forms the code for all genetic information is \_\_\_\_\_\_. 50

 a. DNA c. RNA C, a

 b. messenger RNA d. monoamine oxidase

263. The only known molecule that can replicate or reproduce itself is \_\_\_\_\_\_. 50

 a. DNA c. RNA C, a

 b. messenger RNA d. monoamine oxidase

264. A member of a gene pair that can control the appearance of a certain trait only if 51

 it is paired with another, similar type gene is a \_\_\_\_\_\_ gene. C, a

 a. recessive c. mutated

 b. recombinant d. dominant

265. A member of a gene pair that controls the appearance of a certain trait, no matter what 51

 other type of gene it is paired with is called a \_\_\_\_\_\_ gene. C, d

 a. recessive c. mutated

 b. recombinant d. dominant

266. Jessica’s mother has blue eyes, with two recessive genes for blue eyes. Her father has 51-52

 brown eyes, with two dominant genes for brown eyes. What are the chances that A, a

 Jessica has blue eyes?

 a. 0 percent c. 50 percent

 b. 25 percent d. 75 percent

267. Jessica’s mother has blue eyes, with two recessive genes for blue eyes. Her father has 51-52

 brown eyes, with a dominant gene for brown eyes and a recessive gene for blue eyes. A, c

 What are the chances that Jessica has blue eyes?

 a. 0 percent c. 50 percent

 b. 25 percent d. 75 percent

268. Jessica’s mother has brown eyes, with a dominant gene for brown eyes and a recessive 51-52

 gene for blue eyes. Her father also has brown eyes, with a dominant gene for brown eyes A, b

 and a recessive gene for blue eyes. What are the chances that Jessica has blue eyes?

 a. 0 percent c. 50 percent

 b. 25 percent d. 75 percent

269. Jessica’s mother has brown eyes, with a dominant gene for brown eyes and a recessive 51-52

 gene for blue eyes. Her father also has brown eyes, with a dominant gene for brown eyes A, d

 and a recessive gene for blue eyes. What are the chances that Jessica has brown eyes?

 a. 0 percent c. 50 percent

 b. 25 percent d. 75 percent

270. A process that controls our most important traits in which many genes interact 51-52

 to produce a certain specific trait is called \_\_\_\_\_\_. C, b

 a. genetic dominance c. monogenetic inheritance

 b. polygenic inheritance d. natural selection

271. In many important psychological characteristics, a number of genes make a small 51-52

\*\*\* contribution to the trait in question. This process is known as \_\_\_\_\_\_. C, b

 a. genetic dominance c. natural selection

 b. polygenic inheritance d. cumulative inheritance

272. An organism’s entire unique genetic makeup is called its \_\_\_\_\_\_. 50

 a. phenotype c. genotype C, c

 b. polygenic inheritance d. genetic imprint

273. The human genotype contains about \_\_\_\_\_\_ genes. 50

 a. 20,000 to 25,000 c. 60,000 to 65,000 F, a

 b. 40,000 to 45,000 d. 80,000 to 85,000

274. In every normal cell (except the sex cells) human beings have \_\_\_\_\_\_ chromosomes. 50

 a. 20 c. 27 F, b

 b. 46 d. 64

275. A child who inherits the gene for blue eyes from both parents will have \_\_\_\_\_\_. 51

 a. brown eyes c. hazel eyes A, d

 b. green eyes d. blue eyes

276. A child who inherits the gene for brown eyes from both parents will have \_\_\_\_\_\_. 51

 a. brown eyes c. hazel eyes A, a

 b. green eyes d. blue eyes

277. A child who inherits the gene for brown eyes from one parent and the gene for blue eyes 51

 from the other parent will have \_\_\_\_\_\_. A, a

 a. brown eyes c. hazel eyes

 b. green eyes d. blue eyes

278. The outward expression of a trait is known as its \_\_\_\_\_\_. 52

 a. phenotype c. genotype C, a

 b. polygenic inheritance d. genetic imprint

279. The characteristics of an organism, determined by both genetics and experience are 52

 collectively known as \_\_\_\_\_\_. C, a

 a. phenotype c. genotype

 b. polygenic inheritance d. genetic imprint

280. The central concern of behavior genetics is to \_\_\_\_\_\_. 53

\*\*\* a. determine how experience affects genes that are then passed on to the next F, c

 generation

 b. study the process of natural selection

 c. determine the influence of heredity on behavior

 d. control behavior through genetic manipulation

281. The degree to which variations in a trait can be attributed to genetic factors is called 53

 \_\_\_\_\_\_. C, d

 a. polygenetic inheritance c. the Law of Parsimony

 b. genetic dominance d. heritability

282. Intensive inbreeding of animals over many generations in order to create a group of 53

\*\*\* animals that are genetically very similar to one another and different from other groups of F, b

 animals is called a \_\_\_\_\_\_ study.

 a. selection c. family

 b. strain d. twin

283. Strain studies involve \_\_\_\_\_\_. 53

\*\*\* a. adopting children with similar traits C, d

 b. a single generation of animals

 c. breeding animals which have a trait with other animals that share that trait

 d. inbreeding of close relatives of animals over several generations

 4 yr.: 40% r = .16

284. Studies that estimate the heritability of a trait by breeding animals with other animals 53

 that have the same trait are called \_\_\_\_\_\_ studies. F, a

 a. selection c. family

 b. strain d. twin

 2 yr.: 65% r = .27

285. Scientists studying behavior genetics in humans commonly use which of the following 53

 types of studies for their research on people? F, b

 a. twin studies, but not family, selection, or strain studies

 b. twin and family studies, but not selection or strain studies

 c. twin, family, and selection studies, but not strain studies

 d. twin, family, selection, and strain studies

286. Studies of heritability in humans that assume that if genes influence a certain trait, close 53

 relatives should be more similar with that trait than distant relatives are called \_\_\_\_\_\_ C, a

 studies.

 a. family c. strain

 b. twin d. selection

287. Each of the following is true of family study research designs in behavior 53

\*\*\* genetics **EXCEPT** they \_\_\_\_\_\_. C, a

 a. make it possible to rule out the role of the environment

 b. are designed for human research

 c. assume a greater similarity of a trait among close relatives as opposed to distant

 relatives

 d. suggest a role for heredity in schizophrenia

288. Which of the following types of studies is least effective in ruling out environmental 53

\*\*\* effects in the development of traits? F, d

 a. strain studies c. twin studies

 b. selection studies d. family studies

 4 yr.: 44% r = .30

289. An extremely useful research method for studying human behavior genetics is \_\_\_\_\_\_. 53

\*\*\* a. selective breeding c. selection studies F, d

 b. strain studies d. twin studies

 4 yr.: 58% r = .32

290. Which of the following have the **MOST** similar genetic composition? 53

\*\*\* a. fraternal twins c. identical twins F, c

 b. siblings d. cousins

 4 yr.: 92% r = .33; 2 yr.: 92% r = .35

291. Fraternal twins are \_\_\_\_\_\_ similar genetically than are other brothers and sisters. 53

 a. much more c. no more F, c

 b. slightly more d. much less

292. Twins that develop from two separate fertilized ova and are therefore different in 53

 genetic make-up are \_\_\_\_\_\_ twins. C, b

 a. identical c. Siamese

 b. fraternal d. symbiotic

293. Twins that develop from a single fertilized ovum are \_\_\_\_\_\_ twins. 53

 a. identical c. Siamese C, a

 b. fraternal d. symbiotic

294. Children of schizophrenics are about \_\_\_\_\_\_ times more likely to be schizophrenic than 53

\*\*\* other children. F, b

 a. 5 c. 15

 b. 10 d. 20

295. Siblings of schizophrenics are about \_\_\_\_\_\_ times more likely to be schizophrenic than 53

\*\*\* other children. F, d

 a. two c. six

 b. four d. eight

296. Todd's identical twin brother is schizophrenic. The odds are one out of \_\_\_\_\_\_ that he, 53

\*\*\* too, will be schizophrenic. F, a

 a. two c. six

 b. four d. eight

 4 yr.: 64% r = .22

297. Todd’s fraternal twin brother is schizophrenic. The odds are \_\_\_\_\_\_ percent that he, too, 53

 will be schizophrenic. F, a

 a. about 15 c. about 50

 b. about 25 d. about 100

 4 yr.: 81% r = .10

298. The mechanism proposed by Darwin in his theory of evolution stating that organisms 54

 best adapted to their environment tend to survive and transmit their genetic F, d

 characteristics to their offspring, is called \_\_\_\_\_\_.

 a. behavior genetics c. mutational transmosis

 b. random adaptation d. natural selection

299. The scientist who proposed the mechanism of natural selection to explain the process of 54

 evolution was \_\_\_\_\_\_. F, c

 a. Freud c. Darwin

 b. Pasteur d. Watson

300. From an evolutionary perspective, for mate selection in humans, it is most advantageous 55

 for \_\_\_\_\_\_. F, c

 a. both males and females to seek one mate for life

 b. males to seek one long-term mate but for females to seek as many mates as possible

 c. females to seek one long-term mate but for males to seek as many mates as possible

 d. both males and females to seek as many mates as possible

301. Each of the following is a current criticism of evolutionary psychology **EXCEPT** \_\_\_\_\_. 55

 a. it lacks the basic scientific methodology to properly study any of its claims F, a

 b. it too hastily explains behaviors from an evolutionary perspective rather than

 investigating other origins for them

 c. it uses science to justify perpetuating unjust social policies

 d. by saying a trait is adaptive, it implies that the trait is good

**Essay Questions**

302. Define neuron, axon, dendrite, cell body, and myelin sheath. In your 31

\*\*\* definitions, be sure to describe the specific functions of each item. C

303. Describe the process by which a neuron moves from a resting state to 31-32

\*\*\* firing and then back to a resting state. F

304. Explain the process of how a neural message is transmitted from the end 33-34

\*\*\* of one neuron to the beginning of another. In your explanation, identify at F

 least two neurotransmitters and describe their functions.

305. Describe the location and functioning of the medulla, cerebellum, thalamus, 36

\*\*\* hypothalamus, and cerebral cortex. F

306. Describe the functions of the frontal lobe, temporal lobe, occipital lobe, 38-39; 42

\*\*\* and parietal lobe. Also, briefly discuss the case of Phineas Gage in terms F

 of which areas of his brain were damaged and the effects of that damage.

307. Compare and contrast the functions of the left and right hemispheres of the 39-40

\*\*\* cerebral cortex. What role does the corpus callosum play in this functioning? F

 Finally, what were the reasons for, and results of, split-brain operations?

308. Discuss how the brain controls language in humans, identifying the key structures 40

 involved in language processing and describing the effects of damage to these areas. F

309. Briefly discuss the purposes of and describe the procedure for studying the 42-43

 brain within each of the following general areas: microelectrode techniques, C

 macroelectrode techniques, structural imaging, functional imaging.

310. Compare and contrast the functions of the autonomic nervous system and 45

 the somatic nervous system. F

311. Compare and contrast the functions of the sympathetic and parasympathetic nervous 45-46

\*\*\* system. What does the current scientific evidence indicate in regard to one's ability to F

 consciously control functions normally controlled by the autonomic nervous system?

312. Describe the basic functions of the endocrine system, including the specific functions 47-48

 of the thyroid gland, pancreas, pituitary gland, gonads, and adrenal glands. F

313. Define genes, chromosomes, and DNA and describe their role in the genetic 50-51

 transmission of traits. C

314. Define and describe the uses for and limitations of family studies, twin studies, 53-54

 and adoption studies. What has been learned from these studies about the role of C

 heredity in shaping human personality?

315. Explain what evolutionary psychology is and identify the types of human behaviors 55

 evolutionary psychologists are interested in. Also, briefly discuss the criticisms of C

 evolutionary psychology and how evolutionary psychologists respond to those

 criticisms.

Thinking Critically

Media Accounts of Research

316. Scientists estimate that about \_\_\_\_\_\_of the variation in IQ scores is due to heredity. F, b

a. 2% c. 75%

b. 50% d. 10%

317. A study by Plomin (1998) found that a variant of a particular gene accounted for

about \_\_\_\_\_\_ of the variation in IQ scores. F, a

a. 2% c. 75%

b. 50% d. 10%

Summary Table: Neurotransmitters

318. \_\_\_\_\_\_ plays a critical role as a transmitter where neurons meet skeletal muscles.

 a. Acetylcholine c. Serotonin F, a

 b. Dopamine d. Endorphin

319. An elderly male is diagnosed as having Alzheimer's disease. His physician

 tells him the disorder involves a deficiency of \_\_\_\_\_\_. A, a

 a. acetylcholine c. serotonin

 b. dopamine d. norepinephrine

320. Which of the following neurotransmitters is known for its role in schizophrenia

\*\*\* and Parkinson's disease? F, b

 a. acetylcholine c. serotonin

 b. dopamine d. norepinephrine

321. A schizophrenic is **MOST** likely to have a problem with which of the following

\*\*\* neurotransmitters? A, b

 a. acetylcholine c. serotonin

 b. dopamine d. norepinephrine

 4 yr.: 29% r = .20

322. A person with Parkinson's disease is **MOST** likely to have a problem with

 which of the following neurotransmitters? A, b

 a. acetylcholine c. serotonin

 b. dopamine d. norepinephrine

 4 yr.: 50% r = .23

323. A person who is depressed **MOST** likely has a problem with which of the following

neurotransmitters? A, c

 a. acetylcholine c. serotonin

 b. dopamine d. norepinephrine

Applying Psychology

Drugs and Behavior

324. The toxin produced by the micro-organism that causes botulism prevents the release

 of \_\_\_\_\_\_. F, a

 a. acetylcholine c. serotonin

 b. dopamine d. endorphins

325. Curare, a poison, works by \_\_\_\_\_\_.

 a. blocking receptor sites C, a

 b. speeding up the release of neurotransmitters into the synaptic space

 c. inhibiting the production of excitatory neurotransmitters

 d. inhibiting the production of inhibitory neurotransmitters

326. Curare, a poison, works by blocking receptor sites for \_\_\_\_\_\_.

 a. acetylcholine c. serotonin F, a

 b. dopamine d. endorphins

327. Antipsychotic medications help reduce schizophrenic hallucinations by \_\_\_\_\_\_.

 a. stimulating the release of dopamine F, d

 b. helping dopamine bind to receptor sites

 c. preventing the release of dopamine

 d. preventing dopamine from binding to receptor sites

328. The poison of the black widow spider works by causing an outpouring of \_\_\_\_\_\_.

 a. dopamine c. endorphins F, d

 b. serotonin d. acetylcholine

329. Caffeine arouses people by blocking the receptors for \_\_\_\_\_\_.

 a. norepinephrine c. acetylcholine F, b

 b. adenosine d. thyroxin

330. After drinking several cups of strong coffee, a person develops "coffee nerves" or

\*\*\* "jitters." This probably is due to the ability of caffeine to \_\_\_\_\_\_. A, a

 a. block adenosine receptor sites

 b. inhibit enzymes which break down excitatory neurotransmitters

 c. cause an increase in the release of excitatory neurotransmitters

 d. cause neurotransmitters to leak out of the synaptic vesicles and be destroyed by

 enzymes

331. Despite its dangers, a young man continues to take cocaine because of the feelings of

 euphoria it produces for him. This powerful arousal of his nervous system is probably A, d

 due to cocaine's ability to \_\_\_\_\_\_.

 a. inhibit enzymes that break down neurotransmitters

 b. increase the release of neurotransmitters

 c. block the receptor sites for neurotransmitters

 d. prevent neurotransmitters from being reabsorbed into the synaptic vesicles

Recent Studies

Mirror Neurons

332. At a movie theater, during a scary scene in which a male hero is preparing to defend

 himself from a monster, Juan finds his own legs and arms tensing up, as if he was going A, b

 to have to defend himself from the monster. His behavior is most likely due to \_\_\_\_\_\_.

 a. an overactive imagination

 b. the fact that humans have specialized neurons that cause us to mimic what others are

 doing

 c. the fact that young males tend to overempathize with male heroes in action movies

 d. scary scenes make almost everyone tense their arms and legs, no matter what is

 actually occurring on the screen

333. Neurons that cause us to mimic the actions of others are known as \_\_\_\_\_\_ neurons.

 a. reactive c. sympathy C, d

 b. tertiary d. mirror

334. Mirror neurons have been found \_\_\_\_\_\_.

 a. only in lower life forms, such as invertebrates F, d b. only in lower mammals, but not humans or primates

 c. in almost all animals except for humans

 d. in humans and primates

335. Mirror neurons are especially prevalent in \_\_\_\_\_\_.

 a. canines c. nonhuman primates F, d

 b. felines d. humans

336. Research shows that in humans, mirror neurons allow people to mimic \_\_\_\_\_\_.

 a. both the actions and the emotions of others F, a

 b. the actions but not the emotions of others

 c. the emotions but not the actions of others

 d. neither the actions nor the emotions of others

Details of Damage to Language

337. Corey was in an automobile accident that resulted in an injury to her brain. She now has

\*\*\* difficulty maintaining her balance and normal body positions. Her ability to understand A, b

 and comprehend language has also been injured. The part of her brain **MOST** likely

 injured was her \_\_\_\_\_\_ lobe.

 a. occipital c. parietal

 b. temporal d. frontal

338. Corey was in an automobile accident that resulted in an injury to her brain. She now has

\*\*\* difficulty with her hearing and her ability to recognize faces. The part of her brainA, b

 **MOST** likely injured was her \_\_\_\_\_\_ lobe.

 a. occipital c. parietal

 b. temporal d. frontal

 4 yr.: 76% r = .45

339. The area of the frontal lobe that is crucial in our ability to talk is \_\_\_\_\_\_ area.

 a. Broca’s c. Gall’s F, a

 b. Wernicke’s d. Korsakoff’s

340. The area at the back of the temporal lobe that is crucial in our ability to listen, process,

 and understand what others are saying is \_\_\_\_\_\_ area. F, b

 a. Broca’s c. Gall’s

 b. Wernicke’s d. Korsakoff’s

Details on the Human Genome

341. The sum total of all genes within a human cell is \_\_\_\_\_\_.

 a. polygenetic inheritance c. homogenetic inheritance C, d

 b. the human phenotype d. the human genome

342. Humans share \_\_\_\_\_\_ of their genes with chimpanzees. F, b

 a. 100% c. 50%

 b. 98.7% d. 80.5%

343. Experts believe that the average variation in the human genetic code for any F, b two different people is much less than \_\_\_\_\_\_.

 a. 10% c. 20%

 b. 1% d. 50%

Handedness

344. Speech is most often localized in the left hemisphere of the brain for \_\_\_\_\_\_ F, a

 people.

 a. right- and left-handed c. right-handed

 b. left-handed d. neither right- nor left-handed

345. Approximately \_\_\_\_\_\_ of humans are right-handed, with slightly more males than

females showing a tendency toward left-handedness. F, d

 a. 30% c. 50%

 b. 70% d. 90%