1. An axon transmits messages _____ the cell body and a dendrite transmits messages _____ the cell body.
   A) away from; toward
   B) away from; away from
   C) toward; away from
   D) toward; toward

2. To excite or inhibit an action potential in a receiving neuron, a neurotransmitter must cross the
   A) axon.
   B) synaptic gap.
   C) myelin sheath.
   D) endocrine glands.

3. The release of _____ enables muscle action.
   A) ACh
   B) serotonin
   C) dopamine
   D) adrenaline

4. Depressed mood states are linked to _____ levels of serotonin and _____ levels of norepinephrine.
   A) low; low
   B) high; high
   C) low; high
   D) high; low

5. The peripheral nervous system consists of
   A) interneurons.
   B) the spinal cord.
   C) endocrine glands.
   D) sensory and motor neurons.

6. People are able to feel someone shaking their hand because _____ relay messages from the hand to the central nervous system.
   A) endorphins
   B) motor neurons
   C) sensory neurons
   D) interneurons

7. The autonomic nervous system most directly controls
   A) speech production.
   B) thinking and memory.
   C) movement of the arms and legs.
   D) bladder contractions.

8. Although Ron has no genital sensations, he is capable of an erection if his genitals are stimulated. Ron's experience is most indicative of a(n)
   A) endorphin shortage.
   B) severed spinal cord.
   C) synaptic gap.
   D) all-or-none response.

9. The release of epinephrine and norepinephrine _____ blood pressure and _____ blood sugar levels.
   A) raises; raises
   B) lowers; lowers
   C) raises; lowers
   D) lowers; raises

10. Which of the following chemical messengers is both a neurotransmitter and a hormone?
   A) serotonin
   B) acetylcholine
   C) norepinephrine
   D) dopamine

11. To monitor the electrical activity in the brain that is triggered by hearing one's own name, researchers would make use of a(n)
   A) MRI.
   B) PET scan.
   C) EEG.
   D) brain lesion.

12. Your life would be most immediately threatened if you suffered destruction of the
   A) amygdala.
   B) hippocampus.
   C) cerebellum.
   D) medulla.

13. Stimulation of the reticular formation will cause a
    A) sleeping cat to awaken.
    B) hungry cat to stop eating.
    C) violent cat to become passive.
    D) thirsty cat to drink.

14. Which neural center in the limbic system plays an important role in emotions such as fear and rage?
    A) amygdala
    B) thalamus
    C) nucleus accumbens
    D) hypothalamus

15. Which lobe of the cerebral cortex is most directly involved in controlling the facial muscle movements necessary for speaking?
    A) occipital
    B) frontal
    C) temporal
    D) parietal

16. The visual cortex is located in the
    A) occipital lobes.
    B) parietal lobes.
    C) temporal lobes.
    D) association areas.

17. Following massive damage to his frontal lobes, Phineas Gage was most strikingly debilitated by
    A) muscle spasms.
    B) memory loss.
    C) auditory hallucinations.
    D) irritability.

18. If you lose a foot, the area within the somatosensory cortex that received its input will begin to pick up signals from the formerly adjoined leg. This best illustrates the value of
    A) neurogenesis.
    B) lateralization.
    C) plasticity.
    D) hemispherectomy.

19. Research with split-brain patients suggests that the _____ typically constructs the theories people offer to explain their own behaviors.
    A) corpus callosum
    B) left cerebral hemisphere
    C) somatosensory cortex
    D) right cerebral hemisphere

20. The ability to focus our attention in order to learn a complex concept best illustrates the value of
    A) parallel processing.
    B) change blindness.
    C) REM rebound.
    D) consciousness.

21. The ability to consciously recognize and name the color of an object while we simultaneously and unconsciously monitor the object's shape and movement illustrates
    A) the circadian rhythm.
    B) change blindness.
    C) the two-track mind.
    D) hypnagogic sensations.

22. Parallel processing involves the processing of many aspects of a problem
    A) in a sequential order.
    B) in a balanced manner.
    C) at the same time.
    D) at a conscious level.

23. While talking with a hotel desk clerk, Aaron momentarily turned around to pick up his suitcase. When he turned back and resumed his conversation, he failed to notice that he was now speaking with a different desk agent. His failure best illustrates
    A) change blindness.
    B) parallel processing.
    C) hypnagogic sensation.
    D) REM rebound.

24. People who claim to have been abducted by space aliens—often shortly after going to bed—commonly recall being floated off their beds. It is most likely that they have incorporated _____ into their memories.
    A) bed-wetting
    B) narcolepsy
    C) hypnagogic sensations
    D) sleep apnea

25. The large, slow brain waves associated with NREM-3 sleep are called
    A) MRIs.
    B) delta waves.
    C) alpha waves.
    D) REMs.

26. Chronic sleep deprivation is most likely to contribute to
    A) weight loss.
    B) increased creativity.
    C) suppression of the immune system.
    D) decreased blood pressure.

27. Which of the following is a stress hormone that stimulates the body to make fat?
    A) leptin
    B) cortisol
    C) melatonin
    D) serotonin

28. Which sleep disorder is most likely to be accompanied by sleepwalking and sleeptalking?
    A) narcolepsy
    B) night terrors
    C) sleep apnea
    D) insomnia

29. It has been suggested that _____ is a response to random neural activity that spreads upward from the brainstem.
    A) dreaming
    B) sleep apnea
    C) narcolepsy
    D) the circadian rhythm

Answer Key

1. A
2. B
3. A
4. A
5. D
6. C
7. D
8. B
9. A
10. C
11. C
12. D
13. A
14. A
15. B
16. A
17. D
18. C
19. B
20. D
21. C
22. C
23. A
24. C
25. B
26. C
27. B
28. B
29. A

1. After Lola began using a street drug to enhance her moods, she discovered that she needed larger and larger doses of the drug in order to feel the drug's effect. Use your understanding of the neurotransmission process to explain Lola's experience.

2. The ancient Greek physician Hippocrates believed that four basic body fluids (blood, black bile, yellow bile, and phlegm) influenced human behavior, emotions, and personality. Use your understanding of the body's rapid and slower chemical communication systems to support or refute the general logic of Hippocrates' theory.

3. Describe specific functions of our older brain structures that reveal that our brains are responsible for much more than simply our capacity to think.

4. Describe how damage to specific structures in your limbic system would likely affect your experience of (a) emotions such as anxiety and elation, (b) motives such as hunger and sex drive, and (c) memories such as recall of familiar faces or locations.

5. After suffering a head injury in an auto accident, Alyssa says that she remembers what her mother looks like, and she can accurately recall many of her mother's distinctive facial features. However, when she is shown pictures of her mother, Alyssa is unable to recognize who it is, even though she can see clearly. Use your understanding of the functioning brain to account for Alyssa's strange pattern of experience.

6. A series of strokes has damaged regions of Mr. Thornberg's temporal lobes. He can still clearly hear what others are saying, but he now has trouble comprehending spoken language. Use your understanding of the brain's association areas to explain why the stroke damage could leave Mr. Thornberg's hearing unaffected while interfering with his ability to identify the meaning of spoken words.

7. Describe how an understanding of both a normally functioning brain and a split brain enables us to better appreciate the fact that most information processing takes place outside of conscious awareness.

8. Describe what is meant by parallel processing and sequential processing, and explain why the simultaneous occurrence of both parallel and sequential processing illustrates our two-track mind.

9. Joshua, a college sophomore, has difficulty falling asleep at night and therefore avoids going to bed until very late at night. Before he retires for the night, he tries to wear himself out by running around the block several times. Before getting into bed he eats some pizza, takes a couple of sleeping pills, and then reviews the assignments of his early morning class. What specific advice would you give Joshua to help him fall asleep?

10. Franco studied all evening for a chemistry test scheduled for the following morning. That night he dreamed that he accurately copied a female classmate's correct answers to the test questions as they unexpectedly flashed before his eyes. Compare and contrast explanations of Franco's dream that might be provided by Freud's wish-fulfillment theory, by an information-processing theory, and by the theory that dreams are initiated by random neural activation.

Answer Key

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

1. Plasticity refers to the brain's capacity to change by forming new neural pathways based on
   A) refractory periods.
   B) lateralization.
   C) experience.
   D) reuptake.

2. Blind echolocation experts who can use the brain's visual centers to process auditory signals best illustrate the value of
   A) plasticity.
   B) reuptake.
   C) endorphins.
   D) refractory periods.

3. Many years of intensive guitar practice have led to changes in Karyasa's motor cortex that enable her skilled finger movements. This best illustrates the value of
   A) reuptake.
   B) echolocation.
   C) plasticity.
   D) lateralization.

4. The scientific study of the links between biological and psychological processes is called
   A) neurology.
   B) cognitive psychology.
   C) endocrinology.
   D) biological psychology.

5. Dr. Wolski conducts research on the relationship between neurotransmitter deficiencies and mood states. Dr. Wolski's research focus is most characteristic of
   A) tomography.
   B) biological psychology.
   C) endocrinology.
   D) cognitive psychology.

6. A biological psychologist would be most interested in conducting research on the relationship between
   A) neurotransmitters and depression.
   B) age and bone density.
   C) self-esteem and popularity.
   D) genetics and eye color.

7. Cognitive neuroscience is most directly concerned with studying connections between
   A) hormonal and neural processes.
   B) evolution and natural selection.
   C) genes and neurotransmitters.
   D) brain activity and thought processes.

8. Which specialty area would be most interested in identifying the brain-activation patterns associated with a person's conscious recognition of familiar faces or voices?
   A) evolutionary psychology
   B) cognitive neuroscience
   C) behavior genetics
   D) personality psychology

9. Neurons are best described as
   A) positively charged sodium and potassium ions.
   B) chemical molecules that cross the synaptic gap.
   C) nerve cells that function as the building blocks of the nervous system.
   D) bundled axon cables that connect the CNS with muscles, glands, and sense organs.

10. The function of dendrites is to
    A) receive incoming signals from other neurons.
    B) release neurotransmitters into the spatial junctions between neurons.
    C) coordinate the activation of the parasympathetic and sympathetic nervous systems.
    D) control pain through the release of opiate-like chemicals into the brain.

11. An axon is
    A) a cell that serves as the basic building block of the nervous system.
    B) a layer of fatty tissue that encases the fibers of many neurons.
    C) a molecule that blocks neurotransmitter receptor sites.
    D) the extension of a neuron that carries messages away from the cell body.

12. Dendrite is to _____ as axon is to _____.
    A) sensory neuron; motor neuron
    B) sympathetic nervous system: parasympathetic nervous system
    C) signal reception; signal transmission
    D) central nervous system; peripheral nervous system

13. In transmitting sensory information to the brain, an electrical signal travels from the _____ of a single neuron.
    A) dendrites to the axon to the cell body
    B) axon to the cell body to the dendrites
    C) dendrites to the cell body to the axon
    D) axon to the dendrites to the cell body

14. Dendrites are branching extensions of
    A) neurotransmitters.
    B) endorphins.
    C) neurons.
    D) glial cells.

15. An electrical signal that travels down the axon of a neuron is called the
    A) synapse.
    B) myelin sheath.
    C) action potential.
    D) refractory period.

16. Neurons are surrounded by _____, which guide neural connections and clean up after neurons send messages to one another.
    A) endorphins
    B) glial cells
    C) hormones
    D) SSRIs

17. One function of glial cells is to
    A) increase the speed of neural impulses.
    B) mimic the effects of neurotransmitters.
    C) provide nutrients to neurons.
    D) stimulate the production of hormones.

18. A myelin sheath is a
    A) nerve network within the spinal cord that controls physical arousal.
    B) large band of neural fibers connecting the two adrenal glands.
    C) layer of fatty tissue encasing the axons of some nerve cells.
    D) bushy extension of a neuron that conducts impulses toward the cell body.

19. The speed at which a neural impulse travels is increased when the axon is encased by a(n)
    A) endorphin.
    B) myelin sheath.
    C) glial cell.
    D) synaptic vesicle.

20. Mathematical computations by a computer are faster than your quickest mathematical computations because the top speed of a neural impulse is about _____ times slower than the speed of electricity through the wired circuitry in a computer.
    A) 3 hundred
    B) 3 thousand
    C) 3 hundred thousand
    D) 3 million

21. A synapse is a(n)
    A) chemical messenger that triggers muscle contractions.
    B) automatic response to sensory input.
    C) junction between a sending neuron and a receiving neuron.
    D) electrical cable containing many axons.

22. The axon of a sending neuron is separated from the dendrite of a receiving neuron by a
    A) myelin sheath.
    B) neural network.
    C) glial cell.
    D) synaptic gap.

23. The minimum level of stimulation required to trigger a neural impulse is called the
    A) reflex.
    B) threshold.
    C) synapse.
    D) action potential.

24. Excitatory signals to a neuron must exceed inhibitory signals by a minimum intensity in order to trigger
    A) reuptake.
    B) a refractory period.
    C) an action potential.
    D) neurogenesis.

25. The refractory period that occurs after a neuron has fired is a time interval in which
    A) chemical messengers cross synaptic gaps between neurons.
    B) a neurotransmitter is reabsorbed by a sending neuron.
    C) an action potential cannot occur.
    D) an organism reflexively withdraws from a pain stimulus.

26. Increasing excitatory signals above the threshold for a neuron to fire will not affect the intensity of an action potential. This indicates that a neuron's reaction
    A) is inhibited by the myelin sheath.
    B) is delayed by a refractory period.
    C) is an all-or-none response.
    D) depends on neurotransmitter molecules.

27. A neuron's reaction of either firing at full strength or not firing at all is described as
    A) an all-or-none response.
    B) a refractory period.
    C) neural plasticity.
    D) a reflexive response.

28. A slap on the back is more painful than a pat on the back because a slap triggers
    A) the release of endorphins.
    B) more intense neural impulses.
    C) the release of GABA.
    D) more neurons to fire, and to fire more often.

29. When an action potential reaches the end of an axon, an electrical impulse is then converted into a
    A) myelin sheath.
    B) reflexive response.
    C) chemical message.
    D) glial cell.

30. Neuron-produced chemicals that carry messages to other neurons or to muscles and glands are called
    A) synapses.
    B) interneurons.
    C) dendrites.
    D) neurotransmitters.

31. The chemical messengers released into the spatial junctions between neurons are called
    A) hormones.
    B) neurotransmitters.
    C) interneurons.
    D) glial cells.

32. Neurotransmitters are released from the end (terminal branches) of the
    A) dendrites.
    B) cell body.
    C) axon.
    D) myelin sheath.

33. Reuptake refers to the
    A) movement of neurotransmitter molecules across a synaptic gap.
    B) release of hormones into the bloodstream.
    C) resting pause that occurs after a neuron has fired.
    D) reabsorption of excess neurotransmitter molecules by a sending neuron.

34. The number of neurotransmitter molecules located within a specific synaptic gap would most clearly be reduced by
    A) an action potential.
    B) ACh-producing neurons.
    C) lateralization.
    D) reuptake.

35. SSRIs relieve depression by partially blocking the reuptake of
    A) acetylcholine.
    B) serotonin.
    C) dopamine.
    D) glutamate.

36. Which neurotransmitter plays the most direct role in learning and memory?
    A) dopamine
    B) acetylcholine
    C) GABA
    D) oxytocin

37. Mr. Averro's symptoms of confusion and memory loss have led his physicians to conclude that he suffers from Alzheimer's disease. His symptoms are most likely to be linked with a deterioration of brain cells that produce the neurotransmitter
    A) dopamine.
    B) acetylcholine.
    C) epinephrine.
    D) endorphins.

38. Mr. Anderson suffers from Parkinson's disease and his shaking arm movements are so severe that he has difficulty feeding or dressing himself without help. His symptoms are most likely to be linked with an undersupply of the neurotransmitter
    A) cortisol.
    B) dopamine.
    C) serotonin.
    D) oxytocin.

39. Schizophrenia is most closely linked to an oversupply of the neurotransmitter
    A) dopamine.
    B) epinephrine.
    C) acetylcholine.
    D) serotonin.

40. An undersupply of serotonin is most closely linked to
    A) Alzheimer's disease.
    B) schizophrenia.
    C) Parkinson's disease.
    D) depression.

41. An undersupply of the major inhibitory neurotransmitter known as _____ is linked to seizures.
    A) glutamate
    B) GABA
    C) serotonin
    D) ACh

42. Jacob's severe migraine headaches have led him to seek medical help. It is likely that his symptoms are most closely linked to an
    A) oversupply of GABA.
    B) undersupply of serotonin.
    C) oversupply of glutamate.
    D) undersupply of acetylcholine.

43. Opiate drugs _____ neural activity and temporarily _____ pain and anxiety.
    A) depress; increase
    B) accelerate; decrease
    C) depress; decrease
    D) accelerate; increase

44. Which of the following is an opiate that elevates mood and eases pain?
    A) GABA
    B) acetylcholine
    C) morphine
    D) glutamate

45. Opiate-like neurotransmitters linked to pain control and to feelings of pleasure are known as
    A) glia.
    B) SSRIs.
    C) endorphins.
    D) glutamates.

46. Endorphins are
    A) neurotransmitters.
    B) sex hormones.
    C) endocrine glands.
    D) glial cells.

47. Opiate drugs occupy the same receptor sites as
    A) serotonin.
    B) endorphins.
    C) dopamine.
    D) epinephrine.

48. José has just played a long, bruising football game but feels little fatigue or discomfort. His lack of pain is most likely caused by the release of
    A) glutamate.
    B) dopamine.
    C) acetylcholine.
    D) endorphins.

49. The body's natural production of endorphins is likely to be
    A) increased by heroin use and increased by vigorous exercise.
    B) decreased by heroin use and decreased by vigorous exercise.
    C) increased by heroin use and decreased by vigorous exercise.
    D) decreased by heroin use and increased by vigorous exercise.

50. Jason's intensely uncomfortable withdrawal symptoms following heroin use were probably due in part to a reduction in his body's normal production of
    A) dopamine.
    B) epinephrine.
    C) acetylcholine.
    D) endorphins.

51. The nervous system is the
    A) complete set of glands that secrete hormones into the bloodstream.
    B) collection of bundled axons that form electrical cables carrying information to the body's muscles.
    C) an organism's complete set of automatic reflex responses.
    D) electrochemical communication network that includes all the body's neurons.

52. The two major divisions of the nervous system are the central and the _____ nervous systems.
    A) autonomic
    B) sympathetic
    C) somatic
    D) peripheral

53. The central nervous system consists of
    A) sensory and motor neurons.
    B) somatic and autonomic systems.
    C) the brain and the spinal cord.
    D) sympathetic and parasympathetic branches.

54. Information travels through axons that are bundled into the cables we call
    A) interneurons.
    B) action potentials.
    C) nerves.
    D) reflex pathways.

55. You feel the pain of a sprained ankle when _____ relay(s) messages from your ankle to your central nervous system.
    A) the myelin sheath
    B) interneurons
    C) motor neurons
    D) sensory neurons

56. Sensory neurons are located in the
    A) synaptic gaps.
    B) endocrine system.
    C) peripheral nervous system.
    D) myelin sheath.

57. Information is carried from the central nervous system to the body's tissues by
    A) interneurons.
    B) sensory neurons.
    C) motor neurons.
    D) adrenal glands.

58. Some neurons enable you to grasp objects by relaying outgoing messages to the muscles in your arms and hands. These neurons are called
    A) interneurons.
    B) sensory neurons.
    C) neurotransmitters.
    D) motor neurons.

59. Motor neurons transmit signals to
    A) glands.
    B) interneurons.
    C) sensory neurons.
    D) all of these parts.

60. Neurons that function within the brain and spinal cord are called
    A) sensory neurons.
    B) interneurons.
    C) endorphins.
    D) motor neurons.

61. Central nervous system neurons that process information between sensory inputs and motor outputs are called
    A) neurotransmitters.
    B) interneurons.
    C) synapses.
    D) dendrites.

62. The two parts of the peripheral nervous system are the
    A) brain and spinal cord.
    B) sympathetic nervous system and parasympathetic nervous system.
    C) endocrine system and circulatory system.
    D) somatic nervous system and the autonomic nervous system.

63. The somatic nervous system is a component of the _____ nervous system.
    A) peripheral
    B) central
    C) sympathetic
    D) parasympathetic

64. Messages are transmitted from your spinal cord to muscles in your hands by the _____ nervous system.
    A) somatic
    B) parasympathetic
    C) sympathetic
    D) autonomic

65. The part of the peripheral nervous system that controls the movements of your mouth and jaws as you eat is called the
    A) somatic nervous system.
    B) sympathetic nervous system.
    C) endocrine system.
    D) autonomic nervous system.

66. The part of the peripheral nervous system that controls the glands and the muscles of the internal organs is called the
    A) somatic nervous system.
    B) endocrine system.
    C) sensory nervous system.
    D) autonomic nervous system.

67. Messages are transmitted from your spinal cord to your heart muscles by the
    A) sensory nervous system.
    B) somatic nervous system.
    C) central nervous system.
    D) autonomic nervous system.

68. Which division of the autonomic nervous system arouses the body and mobilizes its energy in stressful situations?
    A) the parasympathetic nervous system
    B) the sympathetic nervous system
    C) the somatic nervous system
    D) the central nervous system

69. You come home one night to find a burglar in your house. Your heart starts racing and you begin to perspire. These physical reactions are triggered by the
    A) somatic nervous system.
    B) sympathetic nervous system.
    C) parasympathetic nervous system.
    D) sensory nervous system.

70. The parasympathetic nervous system
    A) stimulates digestion and slows heartbeat.
    B) inhibits digestion and accelerates heartbeat.
    C) stimulates digestion and accelerates heartbeat.
    D) inhibits digestion and slows heartbeat.

71. After discovering that the shadows outside his window were only the trees in the yard, Ralph's blood pressure decreased and his heartbeat slowed. These physical reactions were most directly regulated by his
    A) parasympathetic nervous system.
    B) sympathetic nervous system.
    C) somatic nervous system.
    D) sensory nervous system.

72. An accelerated heartbeat is to a slowed heartbeat as the _____ nervous system is to the _____ nervous system.
    A) somatic; autonomic
    B) autonomic; somatic
    C) sympathetic; parasympathetic
    D) parasympathetic; sympathetic

73. Neural networks refer to
    A) the branching extensions of a neuron.
    B) interrelated clusters of neurons in the central nervous system.
    C) electrical cables containing many axons.
    D) junctions between sending and receiving neurons.

74. The strengthening of the brain's synaptic connections facilitates the formation of
    A) interneurons.
    B) endorphins.
    C) neural networks.
    D) glial cells.

75. Football quarterbacks can simultaneously make calculations of receiver distances, player movements, and the force of their own arm movements needed to effectively throw a pass. This best illustrates the activity of multiple
    A) endocrine glands.
    B) endorphins.
    C) neural networks.
    D) reticular formations.

76. The part of the central nervous system that carries information from your senses to your brain and motor-control information to your body parts is the
    A) pituitary gland.
    B) pancreas.
    C) spinal cord.
    D) myelin sheath.

77. A simple, automatic, inborn response to a sensory stimulus is called a(n)
    A) neural network.
    B) action potential.
    C) neurotransmitter.
    D) reflex.

78. The knee-jerk reflex is controlled by interneurons in the
    A) synaptic gap.
    B) spinal cord.
    C) sympathetic nervous system.
    D) parasympathetic nervous system.

79. In a tragic diving accident, Andrew damaged his spinal cord. As a result, his legs were paralyzed. Andrew's injury was located in his
    A) somatic nervous system.
    B) autonomic nervous system.
    C) sympathetic nervous system.
    D) central nervous system.

80. Aaron consistently exhibits a knee-jerk response without having any sensations of the taps on his knees. Aaron's experience is most indicative of
    A) neural plasticity.
    B) a severed spinal cord.
    C) a sympathetic nervous system injury.
    D) a refractory period.

81. The endocrine system consists of the
    A) communication network that includes all the body's neurons.
    B) regions of the brain that regulate emotion.
    C) interneurons within the spinal cord.
    D) glands that secrete hormones.

82. Hormones are the chemical messengers of the
    A) autonomic nervous system.
    B) somatic nervous system.
    C) endocrine system.
    D) central nervous system.

83. The speedy nervous system zips messages by way of neurotransmitters. Endocrine messages, however, are delivered more slowly because hormones travel through
    A) myelinated neurons.
    B) the bloodstream.
    C) glial cells.
    D) interneurons.

84. The ovaries in females and the testes in males are part of the
    A) somatic nervous system.
    B) endocrine system.
    C) autonomic nervous system.
    D) central nervous system.

85. The release of hormones by the adrenal glands is most likely to trigger
    A) depression.
    B) the fight-or-flight response.
    C) the pain reflex.
    D) a refractory period.

86. If a professor accused you of cheating on a test, your adrenal glands would probably release _____ into your bloodstream.
    A) endorphins
    B) acetylcholine
    C) epinephrine
    D) oxytocin

87. The release of epinephrine into the bloodstream is most likely to
    A) increase blood sugar.
    B) lower blood pressure.
    C) stimulate digestion.
    D) decrease perspiration.

88. The hypothalamus influences the _____ to send messages to the _____.
    A) adrenal glands; pancreas
    B) pituitary; endocrine glands
    C) motor neurons; sensory neurons
    D) somatic nervous system; autonomic nervous system

89. At the age of 22, Mrs. LaBlanc was less than 4 feet tall. Her short stature was probably influenced by the lack of a growth hormone produced by the
    A) pancreas.
    B) thyroid.
    C) adrenal gland.
    D) pituitary gland.

90. Kendra and several classmates are studying for upcoming test. As they talk, levels of oxytocin in Kendra's bloodstream begin to rise. This is most likely to lead Kendra to experience increased feelings of social
    A) irritation.
    B) envy.
    C) trust.
    D) anxiety.

91. Oxytocin is secreted by the
    A) pancreas.
    B) thyroid gland.
    C) pituitary gland.
    D) adrenal gland.

92. The master gland of the endocrine system is the
    A) thyroid gland.
    B) adrenal gland.
    C) pituitary gland.
    D) pancreas.

93. A device that records waves of electrical activity sweeping across the surface of the brain is called a(n)
    A) fMRI.
    B) EEG.
    C) PET scan.
    D) MRI.

94. To identify which of Lucy's brain areas was most active when she talked, neuroscientists gave her a temporarily radioactive form of glucose and a(n)
    A) fMRI.
    B) PET scan.
    C) EEG.
    D) MRI scan.

95. Magnetic resonance imaging uses magnetic fields and _____ to produce computer-generated images of soft tissue.
    A) radio waves
    B) microelectrodes inserted into the brain
    C) a radioactive form of glucose
    D) electrodes placed on the scalp

96. The best way to detect enlarged fluid-filled brain regions in some patients who have schizophrenia is to use a(n)
    A) EEG.
    B) MRI.
    C) PET scan.
    D) SSRI.

97. To detect Mr. Ziegler's loss of brain tissue from a degenerative disease, his physicians are most likely to request that he receive a(n)
    A) EEG.
    B) MRI scan.
    C) SSRI.
    D) PET scan.

98. To identify which specific brain areas are most active while a person is recalling familiar nursery rhymes, researchers would be most likely to make use of a(n)
    A) fMRI.
    B) microelectrode insertion.
    C) MRI.
    D) SSRI.

99. Human brain complexity arises from new systems built on top of older ones. The remnants of humanity's most distant past involve components of the
    A) amygdala.
    B) hippocampus.
    C) brainstem.
    D) hypothalamus.

100. The part of the brainstem that controls heartbeat and breathing is called the
    A) cerebellum.
    B) medulla.
    C) amygdala.
    D) thalamus.

101. The part of the brainstem that helps to coordinate movements is called the
    A) hypothalamus.
    B) hippocampus.
    C) amygdala.
    D) pons.

102. If your _____ is destroyed, the left side of your brain could not control the movements of your right hand.
    A) brainstem
    B) hippocampus
    C) amygdala
    D) hypothalamus

103. Which joined pair of egg-shaped brain structures receives information from all the senses except smell?
    A) hippocampus
    B) amygdala
    C) pons
    D) thalamus

104. The brain structure that acts as a sensory control center is the
    A) medulla.
    B) cerebellum.
    C) thalamus.
    D) hippocampus.

105. Jason lost his sense of taste because a tumor caused damage to a structure located on top of his brainstem. This structure is known as the
    A) amygdala.
    B) thalamus.
    C) medulla.
    D) hippocampus.

106. Information from higher brain regions is transmitted to the medulla and cerebellum through the
    A) hypothalamus.
    B) hippocampus.
    C) amygdala.
    D) thalamus.

107. The reticular formation is a nerve network that travels through the _____ into the thalamus.
    A) brainstem
    B) amygdala
    C) hypothalamus
    D) cerebellum

108. Which region inside your brainstem plays a role in arousing you to a state of alertness when, for example, you accidentally stumble over another person's misplaced pair of shoes?
    A) reticular formation
    B) hypothalamus
    C) amygdala
    D) hippocampus

109. Severing a cat's reticular formation from higher brain regions causes the cat to
    A) become violently aggressive.
    B) cower in fear.
    C) experience convulsive seizures.
    D) lapse into a coma.

110. Which baseball-sized structure behind the brainstem serves many functions, including helping you to judge time and to discriminate sounds and textures?
    A) amygdala
    B) cerebellum
    C) hippocampus
    D) reticular formation

111. The cerebellum regulates:
    A) hunger and thirst.
    B) heartbeat and breathing.
    C) physical coordination and balance.
    D) fear and rage.

112. After Kato's serious motorcycle accident, doctors detected damage to his cerebellum. Kato is most likely to have difficulty
    A) reading printed words.
    B) understanding what others are saying.
    C) tasting the flavors of foods.
    D) playing his guitar.

113. Which structure at the back of the brain helps process and store memories for things you cannot consciously recall, such as how to ride a bicycle?
    A) amygdala
    B) cerebellum
    C) hypothalamus
    D) reticular formation

114. By managing life-sustaining functions outside of our awareness, the brainstem frees newer brain regions to enable our conscious thinking. This best illustrates the value of
    A) the all-or-none response.
    B) two-track processing.
    C) neural plasticity.
    D) the split brain.

115. A neural system at the border between the brainstem and the cerebral hemispheres is known as the
    A) pons.
    B) limbic system.
    C) reticular formation.
    D) medulla.

116. The sequence of brain regions from the oldest to newest is
    A) limbic system, brainstem, cerebral cortex.
    B) brainstem, cerebral cortex, limbic system.
    C) limbic system, cerebral cortex, brainstem.
    D) brainstem, limbic system, cerebral cortex.

117. The amygdala consists of emotion-linked neural clusters in the
    A) brainstem.
    B) reticular formation.
    C) limbic system.
    D) cerebellum.

118. One woman no longer experienced fear even when threatened with a gun. Her fearlessness is best attributed to damage to her
    A) pons.
    B) cerebellum.
    C) hypothalamus.
    D) amygdala.

119. To demonstrate that brain stimulation can make a rat violently aggressive, a neuroscientist should electrically stimulate the rat's
    A) reticular formation.
    B) cerebellum.
    C) medulla.
    D) amygdala.

120. Which limbic system structure regulates thirst and body temperature?
    A) medulla
    B) amygdala
    C) hippocampus
    D) hypothalamus

121. The brain structure that provides a major link between the nervous system and the endocrine system is the
    A) cerebellum.
    B) amygdala.
    C) reticular formation.
    D) hypothalamus.

122. A brain tumor caused extensive damage to Mr. Thorndike's hypothalamus. It is most likely that he may suffer a loss of
    A) visual perception.
    B) muscular coordination.
    C) sexual motivation.
    D) language comprehension.

123. James Olds and Peter Milner located reward centers in the brain structure known as the
    A) hypothalamus.
    B) cerebellum.
    C) medulla.
    D) amygdala.

124. Animal research has revealed a general reward system related to the release of the neurotransmitter
    A) acetylcholine.
    B) GABA.
    C) dopamine.
    D) epinephrine.

125. The neural center in the limbic system that processes explicit memories for storage is called the
    A) hypothalamus.
    B) thalamus.
    C) hippocampus.
    D) medulla.

126. Those who survive a hippocampal brain tumor in childhood are likely to have difficulty _____ in adulthood.
    A) getting adequate sleep
    B) remembering new information
    C) maintaining body balance while walking
    D) experiencing feelings of fear

127. After experiencing a series of head injuries while playing professional football, Arie has begun to struggle with remembering the names of friends and even family members. His memory difficulties are most likely to be due to damage to his
    A) hippocampus.
    B) motor cortex.
    C) amygdala.
    D) hypothalamus.

128. About 85 percent of human brain weight comes from the
    A) hippocampus.
    B) cerebrum.
    C) corpus callosum.
    D) frontal lobes.

129. The cerebral cortex is the covering layer of the
    A) brainstem.
    B) corpus callosum.
    C) hippocampus.
    D) cerebrum.

130. The brain's thin surface layer, which serves as your body's ultimate information processing center, is the
    A) limbic system.
    B) cerebellum.
    C) corpus callosum.
    D) cerebral cortex.

131. Your conscious awareness of your own name and self-identity depends primarily on the normal functioning of your
    A) somatosensory cortex.
    B) amygdala.
    C) motor cortex.
    D) cerebral cortex.

132. Which portion of the cerebral cortex lies directly behind the forehead and is involved in speaking, muscle movements, and making plans?
    A) temporal lobes
    B) frontal lobes
    C) parietal lobes
    D) occipital lobes

133. Which portion of the cerebral cortex is most closely adjacent to the ears?
    A) parietal lobes
    B) temporal lobes
    C) occipital lobes
    D) frontal lobes

134. Which portion of the cerebral cortex is located nearest the top of the head just behind the frontal lobes?
    A) occipital lobes
    B) hippocampus
    C) parietal lobes
    D) temporal lobes

135. The occipital lobes are to _____ as the temporal lobes are to _____.
    A) hearing; sensing movement
    B) seeing; sensing touch
    C) seeing; hearing
    D) speaking; hearing

136. By applying mild electrical stimulation to parts of an animal's cortex, Gustav Fritsch and Eduard Hitzig triggered body movements. They discovered what is now called the
A) motor cortex.
B) visual cortex.
C) auditory cortex.
D) somatosensory cortex.

137. The motor cortex is located in the _____ lobes.
A) occipital
B) temporal
C) frontal
D) parietal

138. A laboratory cat could be made to twitch its whiskers by direct stimulation of the _____ lobes of its cerebral cortex.
A) temporal
B) occipital
C) frontal
D) parietal

139. During open-brain surgery, Adam's left ankle twitched whenever the surgeon electrically stimulated a specific area within Adam's
A) left frontal lobe.
B) right frontal lobe.
C) left parietal lobe.
D) right parietal lobe.

140. Which of the following body parts is associated with the greatest amount of brain tissue in the motor cortex?
A) arms
B) face
C) trunk
D) knees

141. The somatosensory cortex is most critical for our sense of
A) sight.
B) hearing.
C) touch.
D) smell.

142. Which part of your brain is essential for receiving information that you are moving your legs?
    A) corpus callosum
    B) hippocampus
    C) somatosensory cortex
    D) temporal lobes

143. Which of the following body parts is associated with the greatest amount of brain tissue in the somatosensory cortex?
    A) toes
    B) knees
    C) neck
    D) lips

144. Which lobes of the brain receive the input that enables you to feel someone scratching your back?
    A) parietal
    B) temporal
    C) occipital
    D) frontal

145. The surgical removal of a large tumor from Dane's occipital lobe resulted in extensive loss of brain tissue. Dane is most likely to suffer some loss of
    A) muscular coordination.
    B) visual perception.
    C) speaking ability.
    D) pain sensations.

146. Auditory stimulation is processed in the _____ lobes.
    A) occipital
    B) temporal
    C) frontal
    D) parietal

147. A false sensory experience that occurs in the absence of an external sensory stimulus is called
    A) a hemispherectomy.
    B) neurogenesis.
    C) a split brain.
    D) a hallucination.

148. Falsely hearing a sound in the absence of any external stimulus is called
    A) neurogenesis.
    B) a split-brain condition.
    C) a hallucination.
    D) an fMRI.

149. The auditory hallucinations experienced by people with schizophrenia are most closely linked with the activation of areas in their
    A) motor cortex.
    B) parietal lobes.
    C) temporal lobes.
    D) somatosensory cortex.

150. The association areas are located in the
    A) brainstem.
    B) thalamus.
    C) hippocampus.
    D) cerebral cortex.

151. The largest regions of the brain are involved in higher mental functions such as memory and reasoning. These regions are called the
    A) somatosensory cortex.
    B) hippocampus.
    C) corpus callosum.
    D) association areas.

152. Knowing that you will be punished for breaking Mom's favorite dish is a function of the
    A) somatosensory cortex.
    B) corpus callosum.
    C) association areas.
    D) motor cortex.

153. The classic case of railroad worker Phineas Gage best illustrated that frontal lobe damage can
    A) trigger muscle spasms.
    B) enhance moral reasoning skills.
    C) alter one's personality.
    D) facilitate neurogenesis.

154. Cecil Clayton was increasingly impulsive and violent, and scored lower on an intelligence test following damage to his left _____ lobe in a sawmill accident.
    A) parietal
    B) occipital
    C) frontal
    D) temporal

155. People's moral judgments are most likely to seem unrestrained by normal emotions if they have experienced damage to their _____ lobes.
    A) temporal
    B) occipital
    C) parietal
    D) frontal

156. Impaired mathematical and spatial reasoning is especially likely to be linked with damage to association areas in the
    A) parietal lobes.
    B) temporal lobes.
    C) occipital lobes.
    D) frontal lobes.

157. The inability to recognize familiar faces even though one can clearly see and describe features of the faces is associated with damage to the right _____ lobe.
    A) frontal
    B) parietal
    C) occipital
    D) temporal

158. The fact that the ability to interpret and integrate sensory information with stored memories is lost following damage to the _____ disconfirms the claim that we really only use 10 percent of our brain.
    A) motor cortex
    B) amygdala
    C) hypothalamus
    D) association areas.

159. After he suffered a stroke, Mr. Santore's physical coordination skills and responsiveness to sensory stimulation quickly returned to normal. Unfortunately, however, he could no longer figure out how to find his way around his neighborhood. It is most likely that Mr. Santore suffered damage to
A) the amygdala.
B) the somatosensory cortex.
C) the motor cortex.
D) an association area.

160. The capacity of a brain area to develop new neural pathways as it adjusts to damage is known as
A) lateralization.
B) neurogenesis.
C) the split brain.
D) plasticity.

161. Although James lost some manual dexterity following brain damage from a stroke, the development of new neural pathways enabled him to regain most of his lost agility. This best illustrates the value of
A) neurogenesis.
B) lateralization.
C) plasticity.
D) reuptake.

162. The benefits of brain plasticity are most clearly demonstrated in
A) children who have had a cerebral hemisphere surgically removed.
B) people paralyzed by a severed spinal cord.
C) individuals with Alzheimer's disease.
D) split-brain patients.

163. If a slow-growing left-hemisphere tumor disrupts language, the right hemisphere may take over this language functioning. This best illustrates the value of
A) the split brain.
B) neurogenesis.
C) reuptake.
D) plasticity.

164. Among deaf people, a temporal lobe area normally dedicated to hearing may begin to process visual signals. This best illustrates the impact of
    A) plasticity.
    B) neurogenesis.
    C) lateralization.
    D) refractory periods.

165. After Clark's left hand was amputated, the somatosensory cortex area that had processed sensations of touch from that hand gradually began to process touch sensations from his lower left arm. This best illustrates the consequences of
    A) neurogenesis.
    B) plasticity.
    C) lateralization.
    D) the split brain.

166. The process of forming new neurons within the brain is called
    A) lateralization.
    B) hemispherectomy.
    C) neurogenesis.
    D) plasticity.

167. Physical exercise, sex, and sleep are natural ways to promote
    A) lateralization.
    B) neurogenesis.
    C) hemispherectomy.
    D) reuptake.

168. A tendency for the brain's left and right hemispheres to serve different functions is called
    A) hemispherectomy.
    B) lateralization.
    C) neurogenesis.
    D) plasticity.

169. The control of speech production by the left rather than the right hemisphere of the brain best illustrates
    A) neurogenesis.
    B) lateralization.
    C) tomography.
    D) plasticity.

170. Damage to the left cerebral hemisphere is most likely to reduce people's ability to
    A) solve arithmetic problems.
    B) copy drawings.
    C) recognize faces.
    D) recognize familiar melodies.

171. The corpus callosum is a wide band of axon fibers that
    A) enables the left hemisphere to control the right side of the body.
    B) transmits information between the cerebral hemispheres.
    C) sends information from the left half of your field of vision to your right cerebral hemisphere.
    D) transfers neural impulses from the somatosensory cortex to the motor cortex.

172. People who have had their corpus callosum surgically severed are said to be patients with
    A) brain plasticity.
    B) brain fissures.
    C) neurogenesis.
    D) split brains.

173. Neurosurgeons have severed the corpus callosum in human patients in order to reduce
    A) lateralization.
    B) epileptic seizures.
    C) neural plasticity.
    D) neurogenesis.

174. Sensory information is transmitted from the _____ visual field of _____ to the left cerebral hemisphere.
    A) left; only the left eye
    B) right; only the right eye
    C) left; only the right eye
    D) right; both the right and left eyes

175. A picture of a dog is briefly flashed in the left visual field of a split-brain patient. At the same time a picture of a boy is flashed in the right visual field. In identifying what she saw, the patient would be most likely to
    A) use her left hand to point to a picture of a dog.
    B) verbally report that she saw a dog.
    C) use her left hand to point to a picture of a boy.
    D) verbally report that she saw a boy.

176. A neurosurgeon begins to sedate the entire left cerebral hemisphere of a patient, who is instructed to count aloud with both arms in the air. What will most likely happen?
    A) The patient's left arm will fall limp, and the patient will become speechless.
    B) The patient's right arm will fall limp, and the patient will become speechless.
    C) The patient's left arm will fall limp, but the patient will continue counting aloud.
    D) The patient's right arm will fall limp, but the patient will continue counting aloud.

177. Deaf people who use sign language typically
    A) demonstrate greater mathematical competence than hearing persons.
    B) process language in their left cerebral hemisphere.
    C) have better communication skills than hearing persons.
    D) have a smaller corpus callosum than hearing persons.

178. People who suffer partial paralysis as a result of damage to the _____will sometimes obstinately claim they can move a paralyzed limb.
    A) right cerebral hemisphere
    B) corpus callosum
    C) left cerebral hemisphere
    D) occipital lobes

179. *Consciousness* is defined as
    A) the ability to solve problems, reason, and remember.
    B) the process of organizing and interpreting sensory information.
    C) effortless processing of incidental information into memory.
    D) our awareness of ourselves and our environment.

180. Attention to her long-term educational goals enables Alicia to avoid thoughtlessly skipping difficult class assignments. This best illustrates the adaptive value of
    A) change blindness.
    B) consciousness.
    C) the circadian rhythm.
    D) REM rebound.

181. Brain scans indicate that conscious awareness arises from
    A) the suprachiasmatic nucleus.
    B) the amygdala.
    C) the somatosensory cortex.
    D) coordinated brain-wide activity.

182. Sequential processing refers to
    A) the formation of complex neural networks.
    B) consciously focusing on one aspect of a problem at a time.
    C) the brain's ability to automatically regulate basic life-sustaining processes such as breathing.
    D) the coordinated brain-wide activity that triggers consciousness.

183. Adding two large numbers together by consciously focusing on and solving each subcomponent of the task in serial order best illustrates
    A) the circadian rhythm.
    B) the two-track mind.
    C) sequential processing.
    D) change blindness.

184. The processing of many aspects of a problem at the same time is called
    A) neural plasticity.
    B) selective attention.
    C) parallel processing.
    D) REM rebound.

185. A capacity to monitor the color, shape, and motion of a flying kite all at the same time best illustrates
    A) REM rebound.
    B) parallel processing.
    C) the circadian rhythm.
    D) change blindness.

186. Focusing conscious awareness on a particular stimulus is called
    A) neurogenesis.
    B) parallel processing.
    C) change blindness.
    D) selective attention.

187. Our inability to consciously process all the sensory information available to us at any single point in time best illustrates the need for
    A) circadian rhythm.
    B) selective attention.
    C) REM rebound.
    D) hypnagogic sensations.

188. While engrossed in reading a novel, Raoul isn't easily distracted by the sounds of the TV or even by his brothers' loud arguments. This best illustrates
    A) inattentional blindness.
    B) latent content.
    C) hypnagogic sensations.
    D) selective attention.

189. A bank teller was so distracted by the sight of a bank robber's weapon that she failed to perceive important features of the criminal's physical appearance. This best illustrates the impact of
    A) parallel processing.
    B) change blindness.
    C) selective attention.
    D) hypnagogic sensations.

190. The increased risk of car accidents for drivers talking on a cell phone
    A) results primarily from using one hand to simply hold one's cell phone.
    B) is no greater than the risk for drivers chatting with other passengers.
    C) is no greater than the risks for drivers listening to a car radio.
    D) is equally great for those using handheld and those using hands-free phones.

191. Which of the following poses the greatest risk of an accident while driving?
    A) sending text messages
    B) talking on a cell phone
    C) listening to the car radio
    D) talking with others in the vehicle

192. While driving to work, John was so focused on his cell-phone conversation that he inadvertently drove through a red light and hit another vehicle. John's experience best illustrates the impact of
    A) parallel processing.
    B) the suprachiasmatic nucleus.
    C) hypnagogic sensations.
    D) selective attention.

193. Failing to see visible objects when our attention is directed elsewhere is called
    A) narcolepsy.
    B) parallel processing.
    C) paradoxical sleep.
    D) inattentional blindness.

194. When asked to watch a video and press a key each time a black-shirted player passed a basketball, most research participants remained unaware of an umbrella-toting woman strolling across the video screen. This illustrated
    A) REM rebound.
    B) inattentional blindness.
    C) hypnagogic sensations.
    D) parallel processing.

195. While a man provided directions to a construction worker, two experimenters rudely interrupted by passing between them carrying a door. The man's failure to notice that during this interruption the construction worker was replaced by another person wearing different-colored clothes illustrates
    A) neural plasticity.
    B) latent content.
    C) parallel processing.
    D) change blindness.

196. After turning to wave at one of her friends during lunch, Jessica fails to notice that her new cell phone, which had been right next to her lunch plate, has disappeared. Her oversight best illustrates
    A) parallel processing.
    B) neural plasticity.
    C) latent content.
    D) change blindness.

197. Research on sleep and dreaming confirms that
    A) sleepwalkers are acting out their dreams.
    B) while some people dream every night, others seldom dream.
    C) the brain's auditory cortex responds to sound stimuli even during sleep.
    D) older adults sleep more than young adults.

198. Circadian rhythm refers to
    A) the pattern of emotional ups and downs we routinely experience.
    B) a pattern of biological functioning that occurs on a roughly 24-hour cycle.
    C) the experience of sleep apnea following a lengthy transoceanic plane flight.
    D) the cycle of four distinct stages that we experience during a normal night's sleep.

199. When working an occasional night shift, people often feel groggiest in the middle of the night but experience new energy around the time they normally would wake up. This best illustrates the impact of
    A) sleep apnea.
    B) neurogenesis.
    C) the circadian rhythm.
    D) REM rebound.

200. With the approach of night, our body temperature begins to drop. This best illustrates the dynamics of the
    A) hypnagogic state.
    B) circadian rhythm.
    C) alpha wave pattern.
    D) REM rebound.

201. Alexis most enjoys talking and socializing with friends late in the evening. Her mother, however, is most energized for social interactions about an hour after breakfast. This difference between Alexis and her mother is best explained by the fact that age and experience tend to alter our
    A) REM rebound.
    B) NREM-2 sleep.
    C) hypnagogic sensations.
    D) circadian rhythm.

202. Most college students are “owls,” with performance _____ across the day. Most older adults are “larks,” with performance _____ as the day progresses.
A) improving; declining
B) declining; improving
C) declining; staying the same
D) staying the same; declining

203. Fast and jerky movements of the eyes are especially likely to be associated with
A) change blindness.
B) parallel processing.
C) REM sleep.
D) sleep apnea.

204. The relatively slow brain waves of a relaxed, awake state are called
A) EEGs.
B) REM rebound.
C) alpha waves.
D) delta waves.

205. Jordanna has decided to go to bed early. Although her eyes are closed and she's very relaxed, she has not yet fallen asleep. An EEG is most likely to indicate the presence of
A) delta waves.
B) alpha waves.
C) free radicals.
D) rapid eye movements.

206. A periodic, natural loss of consciousness that involves distinct stages is known as
A) general anesthesia.
B) the two-track mind.
C) a hallucination.
D) sleep.

207. Fantastic images resembling hallucinations occur with the onset of
A) sleep apnea.
B) delta waves.
C) change blindness.
D) NREM-1 sleep.

208. Hypnagogic sensations are most closely associated with _____ sleep.
    A) NREM-1
    B) NREM-2
    C) NREM-3
    D) REM

209. A minute or two after falling asleep, Luke felt like he was being tossed up and down as if on a boat in rough seas. His experience best illustrates
    A) the circadian rhythm.
    B) hypnagogic sensations.
    C) sleep apnea.
    D) narcolepsy.

210. An hour after going to bed, Mike was so soundly asleep his parents were unable to awaken him for a scheduled dose of medicine. At this point in Mike's sleep, an EEG would have most likely detected
    A) alpha waves.
    B) free radicals.
    C) delta waves.
    D) REM rebound.

211. An EEG shows bursts of rapid brain-wave activity during _____ sleep.
    A) NREM-1
    B) NREM-2
    C) NREM-3
    D) REM

212. The large slow brain waves associated with deep sleep are called
    A) EEGs.
    B) delta waves.
    C) REM rebound.
    D) alpha waves.

213. Delta waves are most clearly associated with _____ sleep.
    A) NREM-1
    B) NREM-2
    C) NREM-3
    D) REM

214. Bed-wetting is most likely to occur at the end of _____ sleep.
    A) NREM-1
    B) NREM-2
    C) NREM-3
    D) REM

215. At 3 o'clock in the morning, John has already slept for four hours. As long as his sleep continues, we can expect an increasing occurrence of
    A) hypnagogic sensations.
    B) muscle tension.
    C) REM sleep.
    D) NREM-3 sleep.

216. During the course of a full night's sleep, young adults are most likely to spend more time in
    A) NREM-3 sleep than in NREM-2 sleep.
    B) REM sleep than in NREM-1 sleep.
    C) NREM-1 sleep than in NREM-3 sleep.
    D) REM sleep than in NREM-2 sleep.

217. Compared with young adults, older adults are especially likely to
    A) spend less time in deep sleep.
    B) spend less time in NREM-1 sleep.
    C) spend more time in paradoxical sleep.
    D) complete the sleep cycle more slowly.

218. The brain waves associated with REM sleep are most similar to those of
    A) NREM-1 sleep.
    B) NREM-2 sleep.
    C) NREM-3 sleep.
    D) an awake but relaxed state.

219. Three hours after she goes to sleep, Shoshanna's heart rate increases, her breathing becomes more rapid, and her eyes move rapidly under her closed lids. Research suggests that Shoshanna is
    A) dreaming.
    B) emitting delta waves.
    C) about to sleepwalk.
    D) experiencing a night terror.

220. Genital arousal is most likely to be associated with
    A) sleep apnea.
    B) REM sleep.
    C) NREM-3 sleep.
    D) narcolepsy.

221. During REM sleep, your skeletal muscles are relaxed because messages from the motor cortex are blocked by the
    A) brainstem.
    B) hypothalamus.
    C) suprachiasmatic nucleus.
    D) amygdala.

222. REM sleep is called paradoxical sleep because
    A) our heart rate is slow and steady, while our breathing is highly irregular.
    B) we are deeply asleep but can be awakened easily.
    C) our nervous system is highly active, while our voluntary muscles hardly move.
    D) it leads to highly imaginative dreams that are perceived as colorless images.

223. After sleeping for about an hour and a half, José enters a phase of paradoxical sleep. He is likely to
    A) be easily awakened.
    B) have slower, more regular breathing.
    C) emit slower brain waves.
    D) have very relaxed muscles.

224. Fifty-year-old Lance insists that he never dreams. Research suggests that he probably
    A) would report a vivid dream if he were awakened during REM sleep.
    B) dreams during NREM-1 rather than during REM sleep.
    C) experiences more NREM-2 sleep than most people.
    D) cycles through the distinct sleep stages much more slowly than most people.

225. Research indicates that adults tend to sleep _____ on workdays than on other days. They also tend to go to bed _____ than did their counterparts a century ago.
    A) more; earlier
    B) more; later
    C) less; earlier
    D) less; later

226. The activation of light-sensitive proteins in our eyes' retinas signals our brain to decrease the production of
    A) free radicals.
    B) serotonin.
    C) melatonin.
    D) dopamine.

227. The circadian rhythm is influenced by light-sensitive retinal proteins that trigger signals to the
    A) suprachiasmatic nucleus.
    B) hippocampus.
    C) amygdala.
    D) brainstem.

228. Exposure to bright light causes the
    A) thyroid gland to increase the production of melatonin.
    B) thyroid gland to suppress the production of melatonin.
    C) suprachiasmatic nucleus to increase the production of melatonin.
    D) suprachiasmatic nucleus to suppress the production of melatonin.

229. Humans placed under unnatural constant illumination have more difficulty sleeping thanks to decreased production of
    A) leptin.
    B) cortisol.
    C) melatonin.
    D) free radicals.

230. After flying from London to New York, Arthur experienced extra hours of daylight and had a restless, sleepless night. His problem was most likely caused by a disruption of his
    A) sequential processing.
    B) circadian rhythm.
    C) hypnagogic sensations.
    D) sleep apnea.

231. Bats need a lot of sleep because they burn a lot of calories, which produces _____ that are toxic to neurons.
    A) growth hormones
    B) high melatonin levels
    C) free radicals
    D) alpha waves

232. Which of the following animals tend to sleep the least?
    A) giraffes
    B) dolphins
    C) cats
    D) bats

233. During sleep, memories stored in the _____ are moved to permanent storage in areas of the cortex.
    A) thalamus
    B) suprachiasmatic nucleus
    C) amygdala
    D) hippocampus

234. Susan is a political cartoonist whose work requires her to think imaginatively and present ideas in visually novel ways. Her work is most likely to be facilitated by
    A) hypnagogic sensations.
    B) EEG recordings.
    C) full nights of sleep.
    D) sleep apnea.

235. Production of the human growth hormone necessary for muscle development is most strongly associated with
    A) alpha waves.
    B) deep sleep.
    C) hypnagogic sensations.
    D) REM rebound.

236. Jeremy spent several sleepless nights studying for final exams. During the first few days after the semester ended, he averaged nearly 12 hours of sleep. He then settled back to 7.5 to 9 hours of sleep a day. The unusually lengthy sleep time of the first few days after exams suggests that Jeremy ended the semester with
    A) sleep apnea.
    B) narcolepsy.
    C) low melatonin levels.
    D) a sleep debt.

237. People who regularly sleep less than normal experience a(n) _____ risk of depression and a(n) _____ risk of gaining weight.
    A) decreased; decreased
    B) increased; increased
    C) decreased; increased
    D) increased; decreased

238. Sleep deprivation has been shown to
    A) increase attentiveness to highly motivating tasks.
    B) reduce REM rebound.
    C) diminish immunity to disease.
    D) decrease narcolepsy.

239. Traffic accident rates have been found to _____ after the spring change to daylight savings time and to _____ after the fall change back to standard time.
    A) increase; increase
    B) decrease; decrease
    C) increase; decrease
    D) decrease; increase

240. Shelley has not had enough sleep in the past week. She is at increased risk of having a driving accident because her lack of sleep diminishes her
    A) cortisol levels.
    B) REM rebound.
    C) ability to focus attention.
    D) hypnagogic sensations.

241. On the Monday after the "spring forward" to daylight savings time, people show a higher-than-normal incidence of
    A) sleep apnea.
    B) cyberloafing.
    C) narcolepsy.
    D) night terrors.

242. Sleep deprivation increases levels of the hunger-arousing hormone _____ and decreases levels of the hunger-suppressing hormone _____.
    A) melatonin; cortisol
    B) serotonin; orexin
    C) ghrelin; leptin
    D) epinephrine; norepinephrine

243. Sleep deprivation _____ the production of body fat by _____ levels of the stress hormone cortisol.
    A) stimulates; increasing
    B) inhibits; increasing
    C) stimulates; decreasing
    D) inhibits; decreasing

244. Sleep deprivation has been found to _____ metabolic rate and _____ limbic brain responses to the mere sight of food.
    A) increase; enhance
    B) decrease; diminish
    C) increase; diminish
    D) decrease; enhance

245. Julie consistently fails to get as much sleep as she needs. This is most likely to place her at an increased risk of
    A) narcolepsy.
    B) night terrors.
    C) sleep apnea.
    D) gaining weight.

246. A recurring difficulty in falling or staying asleep is called
    A) narcolepsy.
    B) insomnia.
    C) sleep apnea.
    D) paradoxical sleep.

247. REM sleep is
    A) reduced by alcohol and reduced by sleeping pills.
    B) increased by alcohol and reduced by sleeping pills.
    C) reduced by alcohol and increased by sleeping pills.
    D) increased by alcohol and increased by sleeping pills.

248. A need to take larger and larger doses of sleeping pills to avoid insomnia is an indication of
    A) narcolepsy.
    B) tolerance.
    C) sleep apnea.
    D) REM rebound.

249. Narcolepsy is a disorder in which a person
    A) temporarily stops breathing during sleep.
    B) has sudden uncontrollable seizures.
    C) experiences uncontrollable attacks of overwhelming sleepiness.
    D) has difficulty falling and staying asleep.

250. During a heated argument with his teenage daughter, Mr. Reid suddenly fell asleep. Mr. Reid apparently suffers from
    A) narcolepsy.
    B) insomnia.
    C) sleep apnea.
    D) sleepwalking.

251. In which of the following disorders does the person repeatedly stop breathing while asleep?
    A) narcolepsy
    B) sleep apnea
    C) night terrors
    D) insomnia

252. Mr. Oates always sleeps restlessly because he repeatedly stops breathing and then suddenly catches his breath while asleep. It is most likely that Mr. Oates suffers from
    A) sleep apnea.
    B) narcolepsy.
    C) night terrors.
    D) insomnia.

253. Particularly among men, sleep apnea is linked with
    A) night terrors.
    B) sleepwalking.
    C) narcolepsy.
    D) obesity.

254. At 1:00 A.M., Luis gets out of bed and begins to sleepwalk. An EEG of his brain activity is most likely to indicate the presence of
    A) alpha waves.
    B) sleep spindles.
    C) REM sleep.
    D) delta waves.

255. Sitting up in bed, talking nonsense, and appearing highly distressed during REM-3 sleep is most characteristic of
    A) narcolepsy.
    B) sleep apnea.
    C) night terrors.
    D) REM rebound.

256. It has been found that night terrors
    A) are usually recalled vividly for days following their occurrence.
    B) are typically accompanied by a state of temporary muscular immobility or paralysis.
    C) jolt the sleeper to a sudden state of full waking alertness.
    D) typically occur during NREM-3 sleep.

257. Research studies of the content of dreams indicate that
    A) men are less likely than women to report dreams with sexual overtones.
    B) the genital arousal that occurs during sleep is typically related to sexual dreams.
    C) most dreams are marked by at least one negative event or emotion.
    D) most dreams are pleasant, exotic, and unrelated to ordinary daily life.

258. Our capacity to monitor external stimuli well enough to stroll around our house while sleeping best illustrates that we function with a
    A) circadian rhythm.
    B) two-track mind.
    C) REM rebound.
    D) sleep debt.

259. According to Freud, the dreams of adults can be traced back to
    A) erotic wishes.
    B) stressful life events.
    C) biological needs for brain stimulation.
    D) random bursts of neural activity.

260. Freud called the remembered story line of a dream its _____ content.
    A) manifest
    B) paradoxical
    C) hypnagogic
    D) circadian

261. As Inge recalled her dream, she was dancing with a tall, dark, and handsome gentleman when suddenly the music shifted to loud rock and the man disappeared. According to Freud, Inge's account represents the _____ content of her dream.
    A) paradoxical
    B) manifest
    C) latent
    D) hypnagogic

262. According to Freud, the latent content of a dream refers to
    A) its accompanying brain-wave pattern.
    B) the previous day's events that prompted the dream.
    C) the sensory stimuli in the sleeper's environment that are incorporated into the dream.
    D) its underlying but censored meaning.

263. Greg remembered a recent dream in which his girlfriend suddenly grabbed the wheel of his speeding car. Greg's therapist suggested that the dream might be a representation of the girlfriend's efforts to avoid sexual intimacy. According to Freud, the therapist was attempting to reveal the _____ of Greg's dream.
    A) paradoxical content
    B) circadian rhythm
    C) latent content
    D) manifest content

264. Brian has greater difficulty remembering what he learns during a foreign language vocabulary tutorial if he experiences less than his normal amount of REM sleep the night after the tutorial session. Which theory best accounts for Brian's experience?
    A) wish-fulfillment theory
    B) cognitive development theory
    C) REM rebound theory
    D) information-processing theory

265. Evidence suggests that we strengthen and file away our memories of recent life events through
    A) sleeptalking.
    B) EEG recordings.
    C) sleep apnea.
    D) REM sleep.

266. Brain regions that are active as people learn to perform a visual-discrimination task are especially likely to be active again later as they experience
    A) night terrors.
    B) narcolepsy.
    C) sleep apnea.
    D) REM sleep.

267. Research indicates that total time spent in REM sleep is especially high in
    A) males.
    B) infants.
    C) females.
    D) the elderly.

268. Dreams often involve sudden emotional reactions and seemingly random changes in scene. This best serves to support the theory that dreams
    A) strengthen our memories of the preceding day's events.
    B) reflect our level of cognitive development.
    C) prepare us for the stress and challenges of the following day.
    D) are initiated when neural activity spreads upward from the brainstem.

269. Increased activity in the _____ during REM sleep may best explain why dream images are often accompanied by a strong emotional tone.
    A) suprachiasmatic nucleus
    B) frontal lobes
    C) somatosensory cortex
    D) limbic system

270. Which theory emphasizes that dreams simulate reality by drawing on our current understandings of reality?
    A) wish-fulfillment theory
    B) random neural activation theory
    C) REM rebound theory
    D) cognitive development theory

271. Melissa is a graduate student in a theological studies program. The fact that her dreams often involve abstract theological issues and biblical metaphors is best explained by
    A) wish-fulfillment theory.
    B) cognitive development theory.
    C) neural activation theory.
    D) REM rebound theory.

272. REM rebound involves the
    A) tendency for REM sleep periods to become longer and more frequent as a normal night of sleep progresses.
    B) increase in REM sleep that characteristically follows intense learning episodes or stressful daytime experiences.
    C) unusual symptoms of tiredness and irritability that follow periods of REM sleep deprivation.
    D) tendency for REM sleep to increase following REM sleep deprivation.

273. The best indication that our dreaming serves a necessary biological function is provided by the fact that
    A) most dreams are psychologically meaningless.
    B) the disruption of REM sleep leads to narcolepsy.
    C) we experience REM rebound.
    D) sexual tension is naturally discharged during REM sleep.

Answer Key

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

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

91. C
92. C
93. B
94. B
95. A
96. B
97. B
98. A
99. C
100. B
101. D
102. A
103. D
104. C
105. B
106. D
107. A
108. A
109. D
110. B
111. C
112. D
113. B
114. B
115. B
116. D
117. C
118. D
119. D
120. D
121. D
122. C
123. A
124. C
125. C
126. B
127. A
128. B
129. D
130. D
131. D
132. B
133. B
134. C
135. C
136. A

137. C
138. C
139. B
140. B
141. C
142. C
143. D
144. A
145. B
146. B
147. D
148. C
149. C
150. D
151. D
152. C
153. C
154. C
155. D
156. A
157. D
158. D
159. D
160. D
161. C
162. A
163. D
164. A
165. B
166. C
167. B
168. B
169. B
170. A
171. B
172. D
173. B
174. D
175. D
176. B
177. B
178. A
179. D
180. B
181. D
182. B

183. C
184. C
185. B
186. D
187. B
188. D
189. C
190. D
191. A
192. D
193. D
194. B
195. D
196. D
197. C
198. B
199. C
200. B
201. D
202. A
203. C
204. C
205. B
206. D
207. D
208. A
209. B
210. C
211. B
212. B
213. C
214. C
215. C
216. B
217. A
218. A
219. A
220. B
221. A
222. C
223. D
224. A
225. D
226. C
227. A
228. D

229. C
230. B
231. C
232. A
233. D
234. C
235. B
236. D
237. B
238. C
239. C
240. C
241. B
242. C
243. A
244. D
245. D
246. B
247. A
248. B
249. C
250. A
251. B
252. A
253. D
254. D
255. C
256. D
257. C
258. B
259. A
260. A
261. B
262. D
263. C
264. D
265. D
266. D
267. B
268. D
269. D
270. D
271. B
272. D
273. C

1. Karen's years of experience navigating the streets of a very large city as a taxi driver have resulted in changes in her brain's spatial memory centers that support her detailed street location memory. This best illustrates the value of
   A) refractory periods.
   B) plasticity.
   C) echolocation.
   D) reuptake.

2. A neuron is best described as a
   A) synapse.
   B) cell.
   C) sheath.
   D) molecule.

3. The messages neurons carry are nerve impulses called
   A) neurotransmitters.
   B) action potentials.
   C) refractory periods.
   D) EEGs.

4. Drugs that block the reuptake of serotonin will thereby increase the concentration of serotonin molecules in the
   A) axon terminals.
   B) synaptic gaps.
   C) glial cells.
   D) endocrine glands.

5. Natural, opiate-like neurotransmitters linked to pain control are called
   A) glial cells.
   B) dendrites.
   C) glutamates.
   D) endorphins.

6. Neurons that enable people to throw a baseball by relaying messages from their central nervous system to their skeletal muscles are called
   A) interneurons.
   B) sensory neurons.
   C) glial cells.
   D) motor neurons.

7. The vast majority of neurons in the body's information system are
   A) glial cells.
   B) interneurons.
   C) motor neurons.
   D) sensory neurons.

8. Activation of the sympathetic nervous system _____ blood sugar levels and _____ the pupils of the eyes.
   A) lowers; dilates
   B) raises; contracts
   C) lowers; contracts
   D) raises; dilates

9. While listening to operatic solos, musicians process the lyrics and the tunes in separate brain areas. This most clearly illustrates the functioning of different
   A) neurotransmitters.
   B) parathyroids.
   C) neural networks.
   D) reflex systems.

10. The endocrine system consists of
    A) myelin sheaths.
    B) neural networks.
    C) interneurons.
    D) glands.

11. Which hormone enables contractions associated with birthing and milk flow during nursing?
    A) insulin
    B) cortisol
    C) oxytocin
    D) epinephrine

12. Which of the following would be particularly useful for detecting the brain areas that are most active as a person performs mathematical calculations?
    A) an SSRI
    B) enlarged ventricles
    C) a PET scan
    D) an MRI scan

13. The brain's oldest region is the
    A) hippocampus.
    B) amygdala.
    C) brainstem.
    D) hypothalamus.

14. Which brain structure relays information from the eyes to the visual cortex?
    A) thalamus
    B) amygdala
    C) medulla
    D) cerebellum

15. After suffering an accidental brain injury, Kira has difficulty walking in a smooth and coordinated manner. She has probably suffered damage to her
    A) amygdala.
    B) hypothalamus.
    C) cerebellum.
    D) hippocampus.

16. The limbic system structure that regulates hunger is called the
    A) thalamus.
    B) amygdala.
    C) hippocampus.
    D) hypothalamus.

17. The limbic system's hippocampus
    A) coordinates body movement and balance.
    B) regulates hunger and thirst.
    C) plays a central role in fear and rage.
    D) helps process explicit memories for storage.

18. Which portion of the cerebral cortex is most directly involved in making plans and formulating moral judgments?
    A) occipital lobes
    B) frontal lobes
    C) temporal lobes
    D) parietal lobes

19. The brain devotes more tissue within the _____ for body areas requiring the most precise movement control, such as the fingers.
    A) hippocampus
    B) corpus callosum
    C) occipital lobes
    D) motor cortex

20. The regions of the parietal lobes that are involved in mathematical and spatial reasoning are known as
    A) the hippocampus.
    B) the corpus callosum.
    C) the somatosensory cortex.
    D) association areas.

21. The right hemisphere of Julie's brain is better than her left hemisphere at recognizing facial expressions of emotion. This best illustrates
    A) neurogenesis.
    B) plasticity.
    C) lateralization.
    D) brain fissures.

22. Coordinated brain-wide activity is a sign of
    A) neurogenesis.
    B) conscious awareness.
    C) change blindness.
    D) REM rebound.

23. The processing of information on many parallel tracks at the same time is a skill most closely associated with
    A) sequential processing.
    B) the suprachiasmatic nucleus.
    C) the circadian rhythm.
    D) unconscious mental activity.

24. A teenager focused on texting while crossing the street is not likely to notice a car rounding the corner and about to cross her path. This best illustrates the unfortunate consequences of
    A) hypnagogic sensations.
    B) selective attention.
    C) circadian rhythms.
    D) parallel processing.

25. In one experiment, many of the research participants who were keeping track of basketball tosses between players failed to notice a gorilla-suited research assistant thumping his chest as he moved among the players. This failure best illustrated
    A) parallel processing.
    B) REM rebound.
    C) inattentional blindness.
    D) hypnagogic sensations.

26. An experienced tennis player's brain and body respond with skilled accuracy to an oncoming serve before the person becomes consciously aware of the ball's trajectory. This best illustrates the value of
    A) the circadian rhythm.
    B) inattentional blindness.
    C) REM rebound.
    D) a two-track mind.

27. Staying up especially late on weekends is most likely to have an influence on
    A) narcolepsy.
    B) sleep apnea.
    C) the circadian rhythm.
    D) night terrors.

28. Alpha waves are associated with
    A) NREM-2 sleep.
    B) NREM-3 sleep.
    C) REM sleep.
    D) a relaxed but awake state.

29. A recurring sleep stage during which most vivid dreams commonly occur is known as _____ sleep.
    A) NREM-1
    B) NREM-2
    C) NREM-3
    D) REM

30. Bright light inhibits our feelings of sleepiness by influencing the production of
    A) melatonin.
    B) dopamine.
    C) cortisol.
    D) leptin.

31. Sleep deprivation increases levels of the hunger-arousing hormone
    A) melatonin.
    B) ghrelin.
    C) leptin.
    D) serotonin.

32. Which of the following sleep disorders is most strongly associated with obesity?
    A) narcolepsy
    B) insomnia
    C) night terrors
    D) sleep apnea

33. The distinction between manifest content and latent content is central to an explanation of dreams that emphasizes
    A) neural pathway development.
    B) filing memories for permanent storage.
    C) satisfaction of one's own wishes.
    D) one's current cognitive development.

Answer Key

1. B
2. B
3. B
4. B
5. D
6. D
7. B
8. D
9. C
10. D
11. C
12. C
13. C
14. A
15. C
16. D
17. D
18. B
19. D
20. D
21. C
22. B
23. D
24. B
25. C
26. D
27. C
28. D
29. D
30. A
31. B
32. D
33. C