1. A neuron receives information through the _____ and passes information along through the _____.
   A) cell body; axon
   B) dendrite; glial cells
   C) axon; cell body
   D) dendrite; axon

2. What happens to neurotransmitters after they deliver their message to the receiving neuron?
   A) They are destroyed by enzymes.
   B) They are taken back into the axon terminals of the sending neuron for reuse.
   C) They are either destroyed by enzymes or taken back into the axon terminals of the sending neuron for reuse.
   D) They are neither destroyed by enzymes nor taken back into the axon terminals of the sending neuron for reuse.

3. A researcher views a computer-generated image that shows the areas of Jan's brain while she is reading. The image shows where glucose is being metabolized within the brain. The researcher is using a(n):
   A) PET scan.
   B) fMRI.
   C) EEG.
   D) GABA.

4. Which neurotransmitter(s) is/are the nervous system's natural painkiller?
   A) endorphins
   B) norepinephrine
   C) dopamine
   D) acetylcholine

5. The central nervous system is comprised of:
   A) the somatic nervous system and autonomic nervous system.
   B) the brain and spinal cord.
   C) the sympathetic nervous system and parasympathetic nervous system.
   D) every nerve in the body.

6. Endocrine glands do NOT include:
   A) the pituitary gland.
   B) tear glands.
   C) the pancreas.
   D) the thyroid gland.

7. George's pupils are dilated and his heart rate is speeding up. The part of the nervous system responsible for these changes is the _____ nervous system.
   A) somatic
   B) central
   C) sympathetic
   D) parasympathetic

8. In the Schachter-Singer two-factor theory of emotion:
   A) the emotional feeling precedes the physiological arousal.
   B) the physiological arousal and emotion feeling occur simultaneously.
   C) a cognitive appraisal of the situation allows us to identify the emotion.
   D) each emotion produces a distinctly different pattern of physiological arousal.

9. The _____, a brain stem structure, is involved in regulating body functions needed for survival, such as breathing and heartbeat.
   A) amygdala
   B) medulla
   C) thalamus
   D) cerebellum

10. Which statement about the limbic system is FALSE?
   A) The limbic system plays an important role in survival, memory, and emotion.
   B) The limbic system is comprised of the hippocampus, hypothalamus, and amygdala.
   C) The limbic system is where higher-level cognitive processes occur.
   D) The limbic system surrounds the top of the brain stem.

11. Which structure is the LARGEST part of the brain?
   A) the brain stem
   B) the cerebral cortex
   C) the cerebellum
   D) the limbic system

12. The _____ cortex in the _____ lobe allows us to move different parts of our body.
    A) motor; frontal
    B) somatosensory; parietal
    C) motor; temporal
    D) somatosensory; occipital

13. People with damage to Broca's area have problems:
    A) understanding speech.
    B) singing.
    C) reading silently.
    D) speaking fluently.

14. Split-brain patients:
    A) have a dominant left hemisphere.
    B) can orally identify information presented in their left visual field.
    C) have a severed corpus callosum.
    D) only use the right hemisphere.

15. The right hemisphere processes information from the:
    A) left eye.
    B) left half of each eye.
    C) right visual field.
    D) left visual field.

## Answer Key

1. D
2. C
3. A
4. A
5. B
6. B
7. C
8. C
9. B
10. C
11. B
12. A
13. D
14. C
15. D

1. In what way is a neuron like a miniature decision-making device?
   A) It decides whether or not to accept incoming messages from other neurons.
   B) It decides whether or not to manufacture neurotransmitters.
   C) It decides whether or not to fire an impulse.
   D) It decides how fast an impulse should travel down the axon.

2. Why do neural impulses travel faster in myelinated axons than in unmyelinated axons?
   A) Myelin is a better conductor of electricity than other material in the axon.
   B) The impulse leaps from gap to gap in the myelin sheath, rather than traveling continuously down the axon.
   C) Myelin prevents other substances from interfering with the impulse.
   D) Unmyelinated axons are less developed than myelinated axons.

3. Treating Parkinson's disease with L-dopa may lead to an increase in:
   A) the ability of dopamine to cross the blood-brain barrier.
   B) the amount of dopamine in the brain.
   C) schizophrenia-like symptoms.
   D) both the amount of dopamine in the brain and schizophrenia-like symptoms .

4. Why are drugs that block the reuptake of neurotransmitters considered agonists?
   A) They keep neurotransmitters active in the synaptic gap.
   B) They increase the production of neurotransmitters.
   C) They attach to the receptor cells in the receiving neuron to transmit messages.
   D) They encourage continuous release of neurotransmitters from the axon terminal.

5. Treating schizophrenia with antipsychotic drugs can lead to side effects that resemble Parkinson's disease because these drugs:
   A) increase levels of dopamine activity.
   B) decrease levels of dopamine activity.
   C) destroy dopamine neurons in the brain.
   D) destroy dopamine receptors in the brain.

6. Sensory and motor neurons are located _____ nervous system(s) and interneurons are located _____ nervous system.
   A) in both the central and peripheral; only in the central
   B) in both the central and peripheral; only in the peripheral
   C) only in the central; only in the peripheral
   D) only in the peripheral; only in the central

7. _____ carry information to the CNS, whereas _____ carry information from the CNS.
   A) Motor neurons; interneurons
   B) Interneurons; sensory neurons
   C) Sensory neurons; motor neurons
   D) Motor neurons; sensory neurons

8. Which statement about the sympathetic and parasympathetic nervous systems is FALSE?
   A) The two systems are connected to different glands and organs, thus explaining their dissimilar effects.
   B) The sympathetic nervous system is called our “fight-or-flight” system because it prepares us for action in an emergency situation.
   C) The parasympathetic nervous system is called our “rest-and-digest” system because it returns the body to its normal resting state after arousal.
   D) Both systems are part of the peripheral nervous system.

9. Hormones are released _____ and carry their messages more _____ than neurotransmitters.
   A) into the bloodstream; quickly
   B) into the bloodstream; slowly
   C) directly to their target sites; quickly
   D) directly to their target sites; slowly

10. Why is the pituitary gland referred to as the “master gland”?
   A) It is located near the very top of the brain.
   B) It controls the functioning of the somatic nervous system.
   C) It releases hormones that direct other endocrine glands to release their hormones.
   D) All of the answers are correct.

11. According to the James–Lange theory of emotion, emotion occurs _____ autonomic arousal and the behavioral response. According to the Cannon–Bard theory of emotion, emotion occurs _____ autonomic arousal and the behavioral response.
   A) before; after
   B) after; before
   C) before; at the same time as
   D) after; at the same time as

12. When you feel a slap on the left cheek of your face, the _____ cortex in the _____ lobe of the _____ hemisphere is active.
    A) motor; frontal; right
    B) somatosensory; parietal; right
    C) motor; frontal; left
    D) somatosensory; parietal; left

13. Sheila was in an accident in which she received damage to her cerebellum. Sheila is MOST likely to have difficulty:
    A) understanding what she reads.
    B) playing soccer.
    C) storing information in short-term memory.
    D) transferring information from short-term memory to long-term memory.

14. When you repeat aloud what someone else is saying, which choice accurately depicts the sequence of brain activity from the time you comprehend the words until the time you prepare to pronounce the words?
    A) Wernicke's area in the temporal lobe, Broca's area in the frontal lobe
    B) Broca's area in the frontal lobe, Wernicke's area in the temporal lobe
    C) Wernicke's area in the frontal lobe, Broca's area in the temporal lobe
    D) Broca's area in the temporal lobe, Wernicke's area in the frontal lobe

15. In laboratory testing of a split-brain patient, suppose a picture of a baseball is flashed only to the patient's left visual field. How would the split-brain patient be able to identify the baseball?
    A) by saying the word “baseball”
    B) by sense of touch, using the right hand
    C) by sense of touch, using the left hand
    D) by either saying the word “baseball” or by sense of touch, using the right hand

16. Why is REM sleep sometimes referred to as paradoxical sleep?
    A) Brain waves are very slow, even if a person is dreaming about activity.
    B) Body muscles are relaxed and immobilized, but the brain is active.
    C) Sleepwalking may occur, but memory is not active enough to recall it.
    D) Eyes are still, but people feel as if they are watching events in a dream.

## Answer Key

1. C
2. B
3. D
4. A
5. B
6. D
7. C
8. A
9. B
10. C
11. D
12. B
13. B
14. A
15. C
16. B

1. The human brain is estimated to consist of approximately _____ nerve cells (neurons).
   A) 100 million
   B) 500 million
   C) 100 billion
   D) 500 billion

2. The _____ is the totality of the connections between neurons in your nervous system.
   A) genome
   B) connectome
   C) neuronome
   D) glianome

3. The cells comprising the support system in the nervous system are the _____, and the cells responsible for receiving, sending, and integrating information in the nervous system are the _____.
   A) neurons; glial cells
   B) glial cells; neurons
   C) glial cells; glial cells
   D) neurons; neurons

4. Recent research indicates that the ratio of glial cells to neurons is approximately:
   A) 1:1.
   B) 10:1.
   C) 50:1.
   D) 100:1.

5. According to recent research on glial cells, which statement is FALSE?
   A) Glial cells communicate with other glial cells.
   B) Glial cells release neurotransmitters.
   C) Glial cells strengthen and weaken neuronal connections.
   D) Glial cells insulate neurons and remove the waste products of neurons.

6. Which part of the neuron looks like the branches of a tree?
   A) the axon
   B) the cell body
   C) the dendrites
   D) the myelin sheath

7. The neuronal structure responsible for receiving information from other neurons is the:
   A) axon.
   B) axon terminal.
   C) dendrite.
   D) cell body.

8. _____ receive information from nearby neurons and then electrical impulses travel down _____ en route to other neurons.
   A) Axons; axons
   B) Axons; dendrites
   C) Dendrites; axons
   D) Dendrites; dendrites

9. The process of neural transmission within a neuron begins at the _____ and ends at the _____.
   A) cell body; axon
   B) axon terminals; cell body
   C) cell body; dendrites
   D) dendrites; axon terminals

10. Starting with incoming information, which ordering describes the sequence of neuronal transmission?
   A) dendrites → cell body → axon → axon terminal
   B) dendrites → axon terminal → axon → cell body
   C) axon → axon terminal → cell body → dendrite
   D) axon terminal → axon → cell body → dendrite

11. The long, singular fiber leaving the cell body is the:
   A) dendrite.
   B) axon.
   C) glial cell.
   D) axon terminal.

12. Which part of the neuron decides whether or not information should be passed on to other neurons?
   A) the axon
   B) the cell body
   C) the dendrites
   D) the axon terminals

13. The _____ contain(s) the nucleus of the neuron.
    A) axon
    B) dendrites
    C) cell body
    D) glial cell

14. Within neurons, communication is _____. Between neurons, communication is _____.
    A) chemical; chemical
    B) chemical; electrical
    C) electrical; chemical
    D) electrical; electrical

15. In which instances will the cell body generate an impulse?
    A) Excitatory input and inhibitory input are equal.
    B) Inhibitory input outweighs excitatory input by a certain amount.
    C) Excitatory input outweighs inhibitory input by a certain amount.
    D) The cell body will generate an impulse if excitatory input and inhibitory input are equal or if excitatory input outweighs inhibitory input by a certain amount.

16. For any particular neuron, an "all-or-nothing" event refers to the fact that all:
    A) impulses travel at the same speed, no matter how intense a stimulus is.
    B) dendrites must receive input or the axon will not transmit an impulse.
    C) axon terminals pass on information, or none do.
    D) input must be excitatory or no information will travel down the axon.

17. We are able to interpret varying intensities of stimuli (e.g., a pat versus a slap) because:
    A) a single neuron can send an intense message or a less intense message.
    B) special neurons send messages more intensely.
    C) neurons send messages more frequently when we receive more intense stimuli.
    D) each neuron sends a different type of signal.

18. When Cheyanne sees a bright light compared with a dim light:
    A) more neurons generate impulses with no change in rate.
    B) more neurons generate impulses with an increase in rate.
    C) the same number of neurons generates impulses with an increase in rate.
    D) the impulse travels down the axon faster.

19. Which statement about the speed of neural impulses is TRUE?
    A) Impulses in all neurons travel at the same speed.
    B) Impulses can travel as fast as 200 miles per hour.
    C) Impulses travel slower if an axon is encased in myelin.
    D) Impulses travel faster if the intensity of the stimulus is strong.

20. Compared with the impulses generated by a whisper, a loud scream will cause:
    A) impulses to travel faster down axons.
    B) fewer neurons to generate impulses.
    C) more neurons to generate impulses more often.
    D) a single neuron to send a bigger impulse.

21. The _____ is an insulating layer of a white fatty substance.
    A) glial cell
    B) dendrite
    C) axon
    D) myelin sheath

22. The myelin sheath _____ the neural impulse because _____.
    A) speeds up; the axon becomes narrower
    B) speeds up; the impulse "leaps" from one gap in the sheath to another
    C) slows down; the axon becomes wider
    D) slows down; the impulse is partially blocked by the myelin

23. As a victim of multiple sclerosis, Mrs. Samuels is suffering from deterioration of _____, leading to an obvious difficulty in _____.
    A) dendrites; hearing
    B) dendrites; moving
    C) the myelin sheath; hearing
    D) the myelin sheath; moving

24. The destruction of the myelin sheath results in movement difficulties for sufferers of multiple sclerosis because:
    A) unmyelinated axons transmit neural messages erratically, greatly slowing movement.
    B) cell bodies cannot respond to dendritic messages when axons are unmyelinated.
    C) the transmission of the neural impulses is greatly slowed when myelin deteriorates.
    D) the all-or-nothing event is stopped when axons are unmyelinated.

25. White matter in the brain is composed of:
    A) myelinated axons.
    B) unmyelinated axons.
    C) myelinated dendrites.
    D) unmyelinated dendrites.

26. The outside layer of our cerebral hemispheres appears gray because it is composed of billions of:
    A) neurotransmitters.
    B) cell bodies and dendrites.
    C) dendrites and glial cells.
    D) myelinated axons.

27. White matter is composed of _____; gray matter is composed of _____.
    A) myelinated axons; cell bodies and dendrites
    B) cell bodies and dendrites; myelinated axons
    C) dendrites; cell bodies and myelinated axons
    D) cell bodies and myelinated axons; dendrites

28. What happens when the impulse reaches the axon terminals?
    A) The impulse reverses direction and travels back to the cell body.
    B) The vesicles in the axon terminals fuse together.
    C) The vesicles in the axon terminals open and neurotransmitters enter the synaptic gap.
    D) The vesicles absorb neurotransmitters.

29. After carrying their message across the synapse to the receptor sites, neurotransmitters:
    A) may be consumed by the brain for energy.
    B) may be destroyed in the synaptic gap by enzymes.
    C) may travel through the receptor sites into the next neuron.
    D) None of the answers is correct.

30. What happens to neurotransmitters after they deliver their message to the receiving neuron?
    A) They may be destroyed by enzymes.
    B) They may be taken back into the axon terminals of the sending neuron for reuse.
    C) They may be destroyed by enzymes or taken back into the axon terminals of the sending neuron for reuse.
    D) They are neither destroyed by enzymes nor taken back into the axon terminals of the sending neuron.

31. Recycling is to aluminum cans as _____ is/are to _____.
    A) reuptake; neurotransmitters
    B) neurotransmitters; reuptake
    C) myelination; axons
    D) axons; myelination

32. A neurotransmitter is:
    A) the microscopic gap between neurons.
    B) a naturally occurring chemical in our nervous system that specializes in transmitting information.
    C) a chemical substance manufactured outside the body that can pass through the blood-brain barrier.
    D) a structure that pushes sodium out of the neuron.

33. The synaptic gap is so small that _____ synaptic gaps would fill one strand of human hair.
    A) 100
    B) 500
    C) 2,000
    D) 10,000

34. The synapse is:
    A) the microscopic gap between neurons.
    B) a naturally occurring chemical in our nervous system that specializes in transmitting information.
    C) a fiber that emanates out of the cell body like the branches of a tree.
    D) the long singular fiber leaving the cell body.

35. In relation to neural transmission, what is happening during binding?
    A) Neurotransmitters attach themselves to cell bodies.
    B) Neurotransmitters travel from the axon to the axon terminals.
    C) Neurotransmitters attach to the axon terminals.
    D) Neurotransmitters attach to dendrite receptor sites.

36. During reuptake:
    A) vesicles release neurotransmitter molecules into the synaptic gap.
    B) neurotransmitter molecules cross the synaptic gap and attach to the receiving neuron.
    C) neurotransmitter molecules are reabsorbed into the sending neuron's axon terminals.
    D) enzymes destroy unused neurotransmitters in the synaptic gap.

37. _____, the father of neuroscience, won the Nobel Prize in 1906 for discovering synapses.
    A) Michael Foster
    B) Santiago Ram?n y Cajal
    C) Sir Charles Scott Sherrington
    D) James Lange

38. _____ first coined the term synapse.
    A) Michael Foster
    B) Santiago Ram?n y Cajal
    C) Sir Charles Scott Sherrington
    D) James Lange

39. The brain consumes approximately _____ percent of the body's oxygen.
    A) 5
    B) 10
    C) 25
    D) 50

40. Approximately _____ percent of the body's blood supply is pumped to the brain.
    A) 10
    B) 20
    C) 25
    D) 40

41. Positron emission tomography (PET) scans would NOT be useful in answering which of these questions?
    A) Which areas of the brain are active when a person is reading a book?
    B) Is the left hemisphere or right hemisphere more involved in speech production?
    C) Does neural activity during speech differ between deaf and speaking individuals?
    D) Which neurotransmitter is involved in speech production?

42. In studying the brain, the _____ technique involves detection of radioactive substances, and the _____ technique involves the detection of the amount of oxygen being used by brain areas.
    A) fMRI; X-ray
    B) X-ray; PET scan
    C) fMRI; PET scan
    D) PET scan; fMRI

43. The fMRI is preferred over the PET scan because:
    A) it is much less costly.
    B) health insurance is more likely to cover fMRIs than PET scans.
    C) fMRIs are less invasive and produce sharper images.
    D) The fMRI is preferable for all of these reasons.

44. Prior to undergoing a brain scan, Brian takes a harmless dose of radioactive glucose. It is likely that Brian's doctor is using which technique?
    A) PET scan
    B) fMRI
    C) X-ray
    D) CT scan

45. An agonist _____ the activity of one or more neurotransmitters, and an antagonist _____ the activity of one or more neurotransmitters.
    A) increases; increases
    B) increases; decreases
    C) decreases; increases
    D) decreases; decreases

46. The neurotransmitter implicated in the memory losses associated with Alzheimer's disease is:
    A) acetylcholine.
    B) dopamine.
    C) GABA.
    D) serotonin.

47. Acetylcholine (ACh) is a neurotransmitter that is involved in:
    A) control of arousal and mood states.
    B) pain relief.
    C) inhibitory control.
    D) muscle movement.

48. Botulinum poison, an _____ for acetylcholine (ACh), works by _____ ACh.
    A) antagonist; blocking receptor sites for
    B) antagonist; blocking release of
    C) agonist; stimulating receptor sites for
    D) agonist; stimulating release of

49. Which drug or poison initially acts as an agonist for acetylcholine (ACh) by causing its continuous release?
    A) black widow spider venom
    B) botulinum
    C) curare
    D) L-dopa

50. Considering their effects on acetylcholine (ACh), the poison curare _____ and the poison botulinum _____.
    A) stimulates release; blocks release
    B) occupies receptor sites; stimulates release
    C) occupies receptor sites; blocks release
    D) blocks release; occupies receptor sites

51. In which way may a drug or poison have an agonistic effect on a neurotransmitter?
    A) stimulating release
    B) inhibiting release
    C) stimulating neurotransmitter breakdown
    D) blocking receptor sites

52. Black widow spider venom is _____ to Ach, and antianxiety drugs are _____ to GABA.
    A) agonistic; antagonistic
    B) antagonistic; agonistic
    C) agonistic; agonistic
    D) antagonistic; antagonistic

53. Low levels of the neurotransmitter _____ are associated with Parkinson's disease.
    A) ACh
    B) dopamine
    C) serotonin
    D) GABA

54. Why has Parkinson's disease been treated by injections of L-dopa rather than injections of dopamine?
    A) Dopamine cannot be made into a drug.
    B) Dopamine cannot cross the blood-brain barrier.
    C) L-dopa has fewer side effects than dopamine when taken as a drug.
    D) L-dopa is less expensive to manufacture than dopamine.

55. Which is NOT a disadvantage of using L-dopa as a treatment for Parkinson's disease?
    A) L-dopa becomes less effective as the disease progresses.
    B) L-dopa is not effective for all Parkinson's patients.
    C) Side effects of taking L-dopa resemble the symptoms of schizophrenia.
    D) L-dopa can't cross the blood-brain barrier

56. In which way may a drug or poison have an antagonistic effect on a neurotransmitter?
    A) stimulating release
    B) stimulating production
    C) blocking release
    D) blocking reuptake

57. _____ is a neurotransmitter involved in thought processes and physical movement.
    A) Serotonin
    B) Norepinephrine
    C) Dopamine
    D) GABA

58. Dopamine activity is believed to be _____ among schizophrenics and _____ among Parkinson's disease sufferers.
    A) lower; lower
    B) higher; higher
    C) higher; lower
    D) lower; higher

59. Amphetamines act as a dopamine _____ by _____.
    A) agonist; stimulating dopamine release
    B) agonist; blocking reuptake of dopamine
    C) antagonist; stimulating dopamine release
    D) antagonist; blocking reuptake of dopamine

60. Cocaine acts as a dopamine _____ by _____.
    A) agonist; stimulating dopamine release
    B) agonist; blocking reuptake of dopamine
    C) antagonist; stimulating dopamine release
    D) antagonist; blocking reuptake of dopamine

61. Amphetamines are to cocaine as _____ is to _____.
    A) dopamine agonist; dopamine antagonist
    B) dopamine antagonist; dopamine agonist
    C) dopamine agonist; dopamine agonist
    D) dopamine antagonist; dopamine antagonist

62. Pleasurable mood effects of addictive drugs are associated with the release of:
    A) acetylcholine.
    B) dopamine.
    C) norepinephrine.
    D) GABA.

63. Cocaine does NOT block the reuptake of:
    A) dopamine.
    B) serotonin.
    C) norepinephrine.
    D) GABA.

64. _____ is a neurotransmitter involved in levels of arousal and mood that is influenced by drugs such as Zoloft.
    A) Serotonin
    B) GABA
    C) Dopamine
    D) ACh

65. _____ is a neurotransmitter involved in sleeping and eating.
    A) Serotonin
    B) GABA
    C) Dopamine
    D) ACh

66. How do drugs such as Prozac work to reduce depression?
    A) They block the reuptake of serotonin.
    B) They block the release of serotonin.
    C) They block the reuptake of GABA.
    D) They block the release of GABA.

67. How do drugs such as Cymbalta and Effexor work to reduce depression?
    A) They block the reuptake of serotonin only.
    B) They block the release of serotonin only.
    C) They block the reuptake of serotonin and norepinephrine.
    D) They block the release of serotonin and norepinephrine.

68. _____ is the main excitatory neurotransmitter in the nervous system, whereas _____ is the main inhibitory neurotransmitter in the nervous system.
    A) Glutamate; GABA
    B) GABA; glutamate
    C) Serotonin; dopamine
    D) Dopamine; serotonin

69. Brakes are to an automobile as _____ is to the nervous system.
    A) dopamine
    B) GABA
    C) serotonin
    D) glutamate

70. The main inhibitory neurotransmitter in the nervous system is:
    A) GABA.
    B) norepinephrine.
    C) glutamate.
    D) dopamine.

71. Valium, an _____ for GABA, is often prescribed to _____.
    A) agonist; reduce anxiety
    B) agonist; increase arousal
    C) antagonist; reduce anxiety
    D) antagonist; increase arousal

72. It has been suggested that a lack of _____ activity may contribute to epilepsy.
    A) dopamine
    B) ACh
    C) glutamate
    D) GABA

73. Jose has epilepsy and has been prescribed Valium, a _____ agonist, to help block epileptic convulsions.
    A) serotonin
    B) norepinephrine
    C) GABA
    D) glutamate

74. The neurotransmitter(s) involved in pain relief is/are:
    A) GABA.
    B) Ach.
    C) endorphins.
    D) dopamine.

75. Morphine and heroin produce their pain relieving effects by:
    A) releasing serotonin.
    B) binding to serotonin receptors.
    C) releasing endorphins.
    D) binding to endorphin receptors.

76. How do morphine and heroin reduce pain?
    A) They prevent the reuptake of dopamine.
    B) They prevent the release of GABA.
    C) They block the receptor sites for serotonin.
    D) They stimulate the receptor sites for endorphins.

77. While exercising, Sally experiences a "runner's high" that is associated with an increase in levels of:
    A) acetylcholine.
    B) endorphins.
    C) GABA.
    D) norepinephrine.

78. Shelby had been receiving acupuncture to help relieve her back pain. Acupuncture may partially be explained as stimulation of:
    A) endorphins.
    B) glutamate.
    C) serotonin.
    D) norepinephrine.

79. The brain is part of the _____ nervous system and the spinal cord is part of the _____ nervous system.
    A) central; central
    B) central; peripheral
    C) peripheral; central
    D) peripheral; peripheral

80. The sympathetic nervous system is to _____ as the parasympathetic nervous system is to _____.
    A) internal environment; external environment
    B) external environment; internal environment
    C) fight-or-flight; rest-and-digest
    D) rest-and-digest; fight-or-flight

81. After a good meal, Jane is relaxing comfortably as her food digests, suggesting her _____ nervous system is in control. When she is frightened by a loud noise, Jane's digestion is inhibited and her heartbeat accelerates, suggesting that her _____ nervous system is in control.
    A) sympathetic; sympathetic
    B) sympathetic; parasympathetic
    C) parasympathetic; sympathetic
    D) parasympathetic; parasympathetic

82. _____ carry information to the CNS, whereas _____ carry information from the CNS.
    A) Motor neurons; interneurons
    B) Interneurons; sensory neurons
    C) Sensory neurons; motor neurons
    D) Motor neurons; sensory neurons

83. Which type of neurons is found only within the central nervous system?
    A) sensory neurons
    B) motor neurons
    C) interneurons
    D) PK cells

84. _____ integrate information within the CNS by communicating with each other.
    A) Sensory neurons
    B) Motor neurons
    C) Intraneurons
    D) Interneurons

85. Which is NOT a function of the spinal cord?
    A) It is the pathway for incoming sensory messages to the brain.
    B) It is the pathway for outgoing messages from the brain about motor movements.
    C) It controls reflexes such as the knee-jerk reflex that do not involve the brain.
    D) It regulates essential body functions such as heartbeat, breathing, and blood pressure.

86. Autonomic is to somatic as _____ is to _____.
    A) parasympathetic; sympathetic
    B) external; internal
    C) involuntary; voluntary
    D) fight; flight

87. At dinner, while John converses with friends, his _____ nervous system controls his heart rate and respiration. His _____ nervous system regulates his stomach and controls the digestion of food.
    A) somatic; somatic
    B) somatic; autonomic
    C) autonomic; somatic
    D) autonomic; autonomic

88. At dinner, when John picks up his fork, his _____ nervous system controls the movement of his fingers. His _____ nervous system regulates his stomach and controls the digestion of food.
    A) somatic; somatic
    B) somatic; autonomic
    C) autonomic; somatic
    D) autonomic; autonomic

89. _____ are chemical messengers produced by the endocrine glands and transmitted _____.
   A) Neurotransmitters; in the bloodstream
   B) Hormones; across the synapse
   C) Neurotransmitters; across the synapse
   D) Hormones; in the bloodstream

90. A major difference between hormones and neurotransmitters is that:
   A) hormones are part of the peripheral nervous system and neurotransmitters are part of the central nervous system.
   B) neurotransmitters are released at their target site, whereas hormones are carried through the bloodstream to target sites.
   C) there are significantly more hormones in the body than there are neurotransmitters.
   D) only hormones are capable of influencing male sexual activity through the effects of testosterone.

91. Neurotransmitters are to _____ as hormones are to _____.
   A) neurons; endocrine glands
   B) endocrine glands; neurons
   C) CNS; PNS
   D) PNS; CNS

92. The _____, releasing hormones essential for human growth, is/are controlled by the _____.
   A) pituitary gland; hypothalamus
   B) hypothalamus; pituitary gland
   C) adrenal glands; pancreas
   D) pancreas; adrenal glands

93. The "master gland" of the endocrine system is the:
   A) pituitary gland.
   B) hypothalamus.
   C) adrenal gland.
   D) thyroid gland.

94. A doctor has diagnosed Denise with a high blood-sugar level, a diagnosis that is MOST likely linked to a problem with the:
    A) thyroid gland.
    B) pituitary gland.
    C) hypothalamus.
    D) pancreas.

95. Adrenal glands are involved in _____, whereas the thyroid gland is involved in _____.
    A) regulating metabolism; digestion and maintaining blood-sugar levels
    B) digestion and maintaining blood-sugar levels; regulating metabolism
    C) triggering the fight-or-flight response; releasing hormones affecting growth and maturation
    D) releasing hormones essential for human growth; triggering the fight-or-flight response

96. Which statement about the physical component of emotion is FALSE?
    A) The physical component of emotion involves the autonomic nervous system.
    B) When we are aroused, the sympathetic nervous system increases blood pressure.
    C) Different emotions seem to lead to subtly different patterns of arousal.
    D) We have a lower body temperature when we are angry than when we are afraid.

97. Which finding is BEST explained by the facial-feedback hypothesis?
    A) We are more likely to respond with smiling faces to crying babies than with smiling faces to smiling babies.
    B) We smile at others when we are sad because we want them to smile back at us.
    C) Our brains use our facial expressions to determine the emotions we are experiencing.
    D) When you see someone you care about, your brain registers the happiness you feel by triggering the smile response.

98. A big smile is an example of the _____ component of emotion. According to the facial-feedback hypothesis, our facial muscles send a message to the _____, which determines which emotion is being experienced.
    A) physical; brain
    B) physical; heart
    C) behavioral; brain
    D) behavioral; heart

99. In the _____ theory of emotion, the physiological arousal and behavioral response _____ the emotional feeling.
    A) James-Lange; precede
    B) James-Lange; follow
    C) Cannon-Bard; precede
    D) Cannon-Bard; follow

100. Walking down a dark, deserted street, Brian suddenly hears footsteps behind him. He starts to sweat and begins to run down the street, interpreting his sweating and running as an indication of fear. This particular description of an emotional experience MOST directly agrees with which theory of emotion?
    A) Cannon-Bard
    B) James-Lange
    C) LeDoux
    D) Schachter and Singer's two-factor theory

101. Which statement reflects the Cannon-Bard theory of emotion?
    A) The racing heartbeat we feel when afraid is indistinguishable from the racing heartbeat we feel in the presence of a romantic partner.
    B) The racing heartbeat and increased skin sensitivity we feel in the presence of a romantic partner is interpreted as the emotion of love.
    C) The physiological, behavioral, and cognitive responses to the presence of a romantic partner occur in varying orders depending on contextual factors, such as time of day and frequency of exposure.
    D) The racing heartbeat we feel when we are afraid.

102. Alone in an isolated vacation cabin, Kristie hears the sound of a window breaking. Simultaneously, she feels very nervous, runs to the phone to call 911, and experiences the emotion of fear. This particular description of an emotional experience MOST directly agrees with which theory of emotion?
    A) Cannon-Bard
    B) James-Lange
    C) LeDoux
    D) Schachter and Singer's two-factor theory

103. What are the two factors in Schachter and Singer's two-factor theory?
    A) physiological arousal and behavioral response
    B) behavioral response and emotional feeling
    C) cognitive appraisal and emotional feeling
    D) physiological arousal and cognitive appraisal

104. When he saw the tornado cloud approach his home, Jason's level of arousal was extremely high. Cognitively appraising the situation and his arousal, Jason labeled his emotion as fear. This particular description of an emotional experience in which cognitive appraisal precedes an emotion MOST directly agrees with which theory of emotion?
   A) Cannon-Bard
   B) James-Lange
   C) LeDoux
   D) Schachter and Singer's two-factor theory

105. _____ proposed that there are different brain systems for different emotions.
   A) James-Lange
   B) Cannon-Bard
   C) Schachter-Singer
   D) LeDoux

106. Liz died from a drug overdose that impaired her ability to breathe. It is likely that the drug suppressed the functioning of the:
   A) medulla.
   B) pons.
   C) cerebellum.
   D) hypothalamus.

107. Which structure in the central core is involved in sleep and dreaming?
   A) the thalamus
   B) the reticular formation
   C) the pons
   D) the medulla

108. The medulla is responsible for _____, whereas the reticular formation is involved in _____.
   A) controlling essential body functions; modulating levels of arousal and consciousness
   B) modulating levels of arousal and consciousness; coordinating movements and balance
   C) coordinating movements and balance; controlling essential body functions
   D) relaying sensory information; modulating levels of arousal and consciousness

109. Cerebellum is to _____ as pons is to _____.
   A) essential body functions; levels of arousal and consciousness
   B) levels of arousal and consciousness; essential body functions
   C) coordination of our movements and balance; involvement in sleeping and dreaming
   D) involvement in sleeping and dreaming; coordination of our movements and balance

110. Which structure is included in the central core of the brain?
   A) the amygdala
   B) the brain stem
   C) the cerebellum
   D) both the brain stem and the cerebellum

111. Which structure is NOT in the central core of the brain?
   A) the medulla
   B) the basal ganglia
   C) the thalamus
   D) the amygdala

112. In our daily lives, we are constantly exposed to a wide array of sensory stimuli. What part of the brain is involved in deciding which of these stimuli enter our conscious awareness?
   A) the thalamus
   B) the reticular formation
   C) the basal ganglia
   D) the amygdala

113. Which statement is TRUE?
   A) The basal ganglia serve as a relay station for incoming sensory information.
   B) The cerebellum is concerned mainly with the coordination of physical movements.
   C) The thalamus is responsible for our different levels of arousal and consciousness.
   D) The reticular formation is involved in essential body functions such as heartbeat, breathing, blood pressure, digestion, and swallowing.

114. After an accident, Carl has some difficulty keeping his balance and also seems to have forgotten how to ride a bike. It is MOST likely that Carl has suffered damage to which brain structure?
   A) the cerebellum
   B) the hippocampus
   C) the hypothalamus
   D) the thalamus

115. A ballet dancer's ability to coordinate a variety of physical movements during performances would be disrupted after damage to the _____.
   A) cerebellum
   B) amygdala
   C) hippocampus
   D) hypothalamus

116. Following a night of drinking, Stephen is unsteady and cannot walk in a straight line. These uncoordinated movements are likely due to the effect of alcohol on the:
   A) pons.
   B) cerebellum.
   C) thalamus.
   D) hypothalamus.

117. Which statement is FALSE?
   A) The thalamus serves as a relay station for incoming sensory information.
   B) The cerebellum is concerned mainly with the coordination of physical movements.
   C) The reticular formation is responsible for our different levels of arousal and consciousness.
   D) The medulla is responsible for the initiation and execution of physical movements.

118. _____ is to coordinating movement as _____ is to initiating movement.
   A) Basal ganglia; cerebellum
   B) Cerebellum; basal ganglia
   C) Medulla; thalamus
   D) Thalamus; medulla

119. Which is NOT a similarity between Huntington's chorea and Parkinson's disease?
   A) Both involve difficulties in movement.
   B) Both involve the basal ganglia.
   C) Both involve neurotransmitter deficits.
   D) Both involve dopamine activity.

120. Parkinson's disease is to _____ as Huntington's disease is to _____.
   A) dopamine deficits; GABA and acetylcholine deficits
   B) GABA and acetylcholine deficits; dopamine deficits
   C) dopamine overactivity; serotonin deficits
   D) serotonin deficits; dopamine overactivity

121. Which three structures are found in the limbic system?
   A) the hypothalamus, the medulla, and the hippocampus
   B) the thalamus, the hypothalamus, and the medulla
   C) the hypothalamus, the hippocampus, and the amygdala
   D) the hypothalamus, the medulla, and the amygdala

122. The limbic system plays an important role in:
   A) basic bodily functions such as heartbeat, breathing, and blood pressure.
   B) relaying incoming sensory information.
   C) the initiation and execution of physical movements.
   D) our survival, emotion, and memory.

123. Which functions are regulated by the hypothalamus?
   A) the operation of basic drives such as eating
   B) the operation of the somatic nervous system
   C) the operation of procedural memory
   D) The hypothalamus controls both the operation of basic drives and the somatic nervous system.

124. Hypothalamus is to _____ as hippocampus is to _____.
   A) eating; drinking
   B) drinking; eating
   C) memory; sex
   D) sex; memory

125. The hippocampus is NOT involved in:
   A) forming new memories.
   B) creating new neurons.
   C) controlling emotions like anger and fear.
   D) neurogenesis.

126. Fred Gage discovered that the hippocampus was capable of creating new neurons through his study of:
   A) Phineas Gage's brain.
   B) postmortem brains of cancer victims.
   C) H. M.'s brain.
   D) postmortem brains of Huntington's chorea victims.

127. The hippocampus is involved in _____, whereas the amygdala is involved in _____.
   A) regulating aggression and fear; maintaining an internal equilibrium
   B) maintaining an internal equilibrium; regulating aggression and fear
   C) forming memories; regulating aggression and fear
   D) maintaining an internal equilibrium; forming memories

128. Violent rhesus monkeys become tame and docile following surgical removal of their:
   A) hippocampus.
   B) thalamus.
   C) amygdala.
   D) hypothalamus.

129. The structure that allows the two cerebral hemispheres to communicate is the:
   A) cerebral cortex.
   B) hippocampus.
   C) corpus callosum.
   D) central core.

130. The _____ differentiates the human brain from that of all other animals.
   A) cerebellum
   B) cerebral cortex
   C) corpus callosum
   D) central core

131. The right and left hemispheres of the brain are connected by the _____ and are covered by the _____.
   A) association areas; motor cortex
   B) motor cortex; association areas
   C) corpus callosum; cerebral cortex
   D) cerebral cortex; corpus callosum

132. The frontal lobe is located _____ the lateral fissure, and the temporal lobe is located _____ the lateral fissure.
   A) above; above
   B) above; below
   C) below; above
   D) below; below

133. The parietal lobe is located in _____ of the central fissure and _____ the lateral fissure.
A) back; above
B) back; below
C) front; above
D) front; below

134. The part of the brain that enables you to feel someone holding your hand is in the _____ lobe.
A) parietal
B) temporal
C) occipital
D) frontal

135. Interpreting body sensation is to _____ as motor movement is to _____.
A) temporal lobe; parietal lobe
B) parietal lobe; frontal lobe
C) frontal lobe; parietal lobe
D) occipital lobe; frontal lobe

136. The proportion of space in the motor cortex devoted to a specific body part depends on the:
A) size of the body part.
B) location of the body part.
C) sensitivity of the body part.
D) precision of movement made by the body part.

137. Motor cortex is to _____ as somatosensory cortex is to _____.
A) frontal lobe; parietal lobe
B) parietal lobe; temporal lobe
C) frontal lobe; temporal lobe
D) occipital lobe; frontal lobe

138. The amount of space for body parts in the motor cortex is allocated according to the _____, and the amount of space for body parts in the somatosensory cortex is allocated according to the _____.
A) size of the body part; size of the body part
B) precision and complexity of the movement of the body part; sensitivity to touch of the body part
C) precision and complexity of the movement of the body part; size of the body part
D) size of the body part; sensitivity to touch of the body part

139. The amount of space devoted to each part of the body in the somatosensory cortex is:
   A) greater for larger parts, such as the torso.
   B) related to the size of a specific body part.
   C) related to the sensitivity of a specific body part.
   D) the same for all body parts, excluding the lips, hands, and feet, which receive greater space.

140. When the doctor gives Takisha an injection in her right arm, the temporary pain of the needle is registered by the _____ cortex in her _____ hemisphere.
   A) motor; left
   B) motor; right
   C) somatosensory; left
   D) somatosensory; right

141. It is possible for people to be conscious during brain surgery because:
   A) local anesthesia can be applied to the surface of the brain.
   B) the brain does not have pain receptors.
   C) the somatosensory cortex can be inhibited.
   D) pain signals cannot travel when local anesthesia is applied to the cortex.

142. The homunculi for the motor and somatosensory strips were determined by:
   A) Santiago Ram?n y Cajal.
   B) Sir Charles Scott Sherrington.
   C) Walter Cannon.
   D) Wilder Penfield.

143. After an accident, Carla experienced visual and auditory difficulties. It is MOST likely that she suffered damage to her _____ lobes.
   A) frontal and occipital
   B) occipital and temporal
   C) temporal and parietal
   D) parietal and frontal

144. The auditory cortex is located in the _____ lobes, and the visual cortex is located in the _____ lobes.
   A) temporal; occipital
   B) occipital; temporal
   C) temporal; frontal
   D) occipital; parietal

145. The ability to see the beautiful dance movements in a ballet performance results from processing in the _____ lobe. The ability to hear the music accompanying the dance movements results from processing in the _____ lobe.
   A) occipital; temporal
   B) temporal; occipital
   C) frontal; parietal
   D) parietal; frontal

146. Occipital lobes are to _____ as parietal lobes are to _____.
   A) movement of body parts; interpreting body sensation
   B) interpreting visual information; interpreting body sensation
   C) interpreting visual information; interpreting auditory information
   D) interpreting body sensation; movement of body parts

147. All cortical areas in the brain, except those devoted to primary sensory or motor processing, are referred to as _____ cortex.
   A) the sensory
   B) the association
   C) Wernicke's
   D) Broca's

148. _____ is a rare neurological condition in which otherwise normal people have cross-sensory experiences in which stimulation in one sensory modality leads to automatic activation in another modality.
   A) Parkinson's disease
   B) Synesthesia
   C) Schizophrenia
   D) Epilepsy

149. Shauna sees the sound of a guitar as blue, a characteristic of a neurological condition called:
   A) epilepsy.
   B) myasthenia gravis.
   C) synesthesia.
   D) aphasia.

150. The majority of the cortex, devoted to the _____ of information, is called the _____ cortex.
A) initial detection: sensory
B) initial detection; association
C) integration; sensory
D) integration; association

151. Approximately _____ percent of the cortex is association cortex.
A) 40
B) 50
C) 70
D) 80

152. The fusiform face area (FFA) is located in the _____ lobe.
A) frontal
B) parietal
C) occipital
D) temporal

153. When Pamela recognized her mother's face, the _____ hemisphere of her _____ lobe was most active.
A) left; parietal
B) right; parietal
C) left; temporal
D) right; temporal

154. Brandon was told by a psychologist that he has prosopagnosia, which means he has difficulty:
A) seeing colors.
B) recognizing people by their faces.
C) hearing a conversation with background noise.
D) remembering people's names.

155. Neurobiological research on the adolescent brain suggests that incomplete development of the _____ lobe may partially explain the poor decision-making and risky behaviors common among adolescents.
A) frontal
B) parietal
C) occipital
D) temporal

156. Phineas Gage's accident led neuroscientists to hypothesize the involvement of the:
   A) frontal lobes in impulse control.
   B) occipital lobes in vision.
   C) parietal lobes in sensitivity to pain.
   D) temporal lobes in hearing.

157. The _____ lobes are important for planning, decision making, and personality.
   A) frontal
   B) parietal
   C) occipital
   D) temporal

158. Broca's area, involved in the _____ of speech, is most often located only in the _____ hemisphere.
   A) production; left
   B) production; right
   C) comprehension; left
   D) comprehension; right

159. An impairment in generating fluent speech is called _____ aphasia, whereas an impairment in language comprehension is called _____ aphasia.
   A) Broca's; association
   B) Wernicke's; Broca's
   C) association; Wernicke's
   D) Broca's; Wernicke's

160. Which statement about language areas in the brain is TRUE?
   A) Broca's area and Wernicke's area are located in the left hemisphere in the majority of people.
   B) Broca's area, located in the left temporal lobe, is responsible for generating fluent speech.
   C) Wernicke's area, located in the left frontal lobe, is responsible for comprehension of speech and text.
   D) Damage to Broca's area results in nonsensical speech.

161. Broca's area is to the _____ lobe as Wernicke's area is to the _____ lobe.
   A) frontal; temporal
   B) temporal; frontal
   C) parietal; occipital
   D) occipital; parietal

162. Interestingly, damage to Broca's area not only influences _____, it also influences _____.
   A) language comprehension; language production
   B) language production; the ability to use sign language
   C) the ability to use sign language; language comprehension
   D) the ability to sing; the ability to use sign language

163. After an accident, David has difficulty understanding what other people say to him. It is highly probable that David has suffered damage to:
   A) his frontal lobe.
   B) his parietal lobe.
   C) Wernicke's area.
   D) Broca's area.

164. It is estimated that approximately _____ percent of left-handers process speech in the left hemisphere.
   A) Most right-handers process speech in the left hemisphere, and most left-handers process speech in the right hemisphere.
   B) More right-handers than left-handers process speech in the left hemisphere.
   C) The ability to produce speech and the ability to use sign language are both processed primarily in the left hemisphere.
   D) None of these statements is false.

165. How did Einstein's brain differ from a "normal" brain?
   A) It was much larger in overall size.
   B) The cortex had a much larger surface area.
   C) The cerebellum was much larger.
   D) The corpus callosum was much thinner.

166. Severing the corpus callosum has been used as a medical treatment for severe cases of:
   A) depression.
   B) epilepsy.
   C) multiple personality disorder.
   D) schizophrenia.

167. In severe cases, surgeons have severed the _____ in humans to reduce the symptoms of _____.
A) cerebral cortex; epilepsy
B) corpus callosum; epilepsy
C) cerebral cortex; aphasia
D) corpus callosum; aphasia

168. Visual information in the left visual field is processed by _____ and then routed to the _____ hemisphere.
A) only the right eye; left
B) only the left eye; right
C) both eyes; left
D) both eyes; right

169. If a split-brain patient has a picture of a spoon flashed briefly in his left visual field, the:
A) image will be processed in his left hemisphere.
B) image will be processed in his right hemisphere.
C) patient will be able to identify the image with his right hand.
D) patient will be able to say that he saw a spoon.

170. A person suffering a stroke that produces severe damage to the left hemisphere might experience difficulty with:
A) drawing a map.
B) recognizing faces.
C) completing a block design puzzle.
D) balancing a checkbook.

171. In laboratory testing of a split-brain patient, suppose a picture of a dog is flashed to the patient's left visual field and a picture of a cat is flashed to the right visual field. Which of the pictures could the split-brain patient verbally identify?
A) both the cat and the dog
B) only the cat
C) only the dog
D) neither the cat nor the dog

172. A split-brain patient is presented with a lime to her right visual field and a lemon to her left visual field. If asked to say orally what she saw, her response would be _____. If asked to point with her left hand to what she saw, she would point at the _____.
   A) lime; lime
   B) lemon; lemon
   C) lime; lemon
   D) lemon; lime

173. In general, the left hemisphere is more involved in _____ tasks, and the right hemisphere is more involved in _____ tasks.
   A) analytic; spatial
   B) spatial; analytic
   C) verbal; mathematical
   D) mathematical; verbal

174. In general, the left hemisphere is more involved in _____ tasks.
   A) analytic
   B) spatial
   C) facial recognition
   D) holistic processing

175. Left hemisphere is to _____ as right hemisphere is to _____.
   A) flowers; buds
   B) trees; forest
   C) verbal; analytical
   D) analytical; verbal

176. In general, the right hemisphere is more involved in _____ tasks.
   A) analytic
   B) spatial
   C) logic
   D) verbal

177. Which statement BEST describes the scope of consciousness?
   A) We are conscious of the overwhelming majority of our brain and body functioning.
   B) We are conscious of how the brain processes information.
   C) We are conscious of both how the brain processes information and the results of that processing.
   D) We are conscious of our inner thinking and feeling and what is happening in our external environment.

178. _____ is to electrical activity as _____ is to oxygen use.
A) PET; fMRI
B) PET; EEG
C) fMRI; PET
D) EEG; fMRI

179. _____ is used to monitor electrical activity via small electrodes attached to the scalp.
A) PET
B) CT
C) fMRI
D) EEG

180. A doctor has suggested that Dwayne should undergo a sleep study to determine why he is having difficulty sleeping. When Dwayne arrives at the study, the doctors use a(n) _____ to measure his brain waves as he sleeps.
A) PET
B) fMRI
C) EEG
D) EOG

181. Sleep researchers have hypothesized that sleep spindles, occurring during _____ sleep, serve to _____ the brain's sensitivity to sensory input.
A) Stage 2; decrease
B) Stage 2; increase
C) REM; decrease
D) REM; increase

182. As we progress from Stage 1 to Stage 4 sleep, which statement BEST describes how our brain waves change?
A) They become faster and larger.
B) They become faster and smaller.
C) They become slower and larger.
D) They become slower and smaller.

183. Stage 2 sleep is characterized by the presence of _____, and Stage 4 sleep is characterized by the presence of _____.
   A) sleep spindles; delta waves
   B) delta waves; sleep spindles
   C) sleep spindles; alpha waves
   D) alpha waves; sleep spindles

184. Although we may dream about running, it is unlikely that we can even walk while we are dreaming. Why is it unlikely that we can actually walk while we are dreaming?
   A) Our brain is not consuming enough oxygen to support walking.
   B) We are too tired to walk.
   C) Our bodies are essentially paralyzed.
   D) Our eyelids are closed, and we would get hurt if we walked.

185. Which statement concerning dreaming is FALSE?
   A) We spend about two hours per night dreaming.
   B) We are most likely to remember dreams from our last phase of REM sleep.
   C) REM is the stage in which most dreaming occurs.
   D) Some individuals do not dream as evidenced by their inability to recall dreams.

186. One possible reason why dreams seem highly emotional is that during REM sleep, the frontal lobes are _____ and the amygdala and hippocampus are _____.
   A) shut down; shut down
   B) shut down; active
   C) active; shut down
   D) active; active

187. The fact that Alzheimer's disorder is often associated with sleep disturbances suggests support for which theory regarding the function of sleep?
   A) Sleep helps us process what we learn.
   B) Sleep helps the brain clean itself of toxic metabolic byproducts.
   C) Sleep evolved as an adaptive process.
   D) Sleep contributes to the production of myelin.

188. Which consequence has NOT been asserted as resulting from sleep deprivation?
   A) muscle mass loss
   B) suppression of the immune system
   C) feelings of weakness and discomfort
   D) impaired concentration

189. Which is NOT true of REM sleep?
   A) Dreaming occurs during REM sleep.
   B) There is a significant increase in the amount of REM sleep following deprivation of REM sleep.
   C) Disruption of REM sleep following learning impairs memory for this learning
   D) Humans are the only mammals that exhibit REM sleep.

190. Which purpose has NOT been proposed as a function of sleep?
   A) restoring the brain and body
   B) consolidating memory
   C) adapting to a dangerous environment
   D) building stronger muscles

191. According to the activation-synthesis hypothesis, we dream because the brain:
   A) needs to consolidate and synthesize daily activities.
   B) actively synthesizes newly acquired information during dreaming.
   C) attempts to make sense of the random neural activity that occurs during sleep.
   D) needs time to rest from the active synthesizing of information that occurs during normal awake periods.

192. What is the main idea of the activation-synthesis hypothesis?
   A) Dreams activate emotions and beliefs so we can synthesize them with actual events.
   B) Dreams help us synthesize newly learned information by activating the hippocampus.
   C) Dreams are an attempt to synthesize random neural activity generated by the pons.
   D) Dreams activate unsolved problems so we can synthesize better solutions.

193. Which statement is a major criticism of the activation-synthesis hypothesis?
   A) It fails to explain why not all individuals remember their dreams.
   B) Dream content is often more incoherent, bizarre, and confusing than would be expected.
   C) Dream content is more consistent over time than would be expected.
   D) It fails to explain why young children recall their dreams more often than older children.

194. _____ theory of dreams suggests that dreams result from our normal cognitive processes, but they use self-generated sensory data during sleep rather than external sensory input as they do when we are awake.
   A) Activation-synthesis
   B) Neurocognitive
   C) REM-rebound
   D) Brain activation

## Answer Key

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

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

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

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

183. A
184. C
185. D
186. B
187. B
188. A
189. D
190. D
191. C
192. C
193. C
194. B

1. The main function of the _____ is to receive information from other neurons.
   A) dendrites
   B) cell body
   C) axon
   D) axon terminals

2. Which compound is an agonist?
   A) curare
   B) GABA
   C) botulinum poison
   D) amphetamine

3. An SSRI works by blocking the reuptake of:
   A) dopamine.
   B) serotonin.
   C) norepinephrine.
   D) GABA.

4. Which type of neuron carries information from the CNS to the rest of the body?
   A) sensory neuron
   B) motor neuron
   C) interneuron
   D) glial

5. Which action is associated with the parasympathetic nervous system?
   A) pupil dilation
   B) stimulation of digestion
   C) acceleration of heartbeat
   D) contraction of blood vessels

6. The actions of the pituitary gland are controlled by the:
   A) hippocampus.
   B) amygdala.
   C) hypothalamus.
   D) medulla.

7. The limbic system consists of the:
   A) thalamus, hypothalamus, and amygdala.
   B) hypothalamus, medulla, and reticular formation.
   C) amygdala, hypothalamus, and hippocampus.
   D) basal ganglia, amygdala, and cerebellum.

8. In the majority of people, Broca's area is located in the _____ hemisphere, and Wernicke's area is located in the _____ hemisphere.
   A) right; right
   B) right; left
   C) left; right
   D) left; left

9. Information in a person's left visual field goes to the _____ half of each eye and then to the _____ hemisphere.
   A) left; left
   B) left; right
   C) right; right
   D) right; left

10. Which stage of sleep is referred to as paradoxical sleep?
   A) Stage 2
   B) Stage 3
   C) Stage 4
   D) REM sleep

11. The _____ theory of emotion proposes that the physiological arousal and behavioral responses and the emotional feeling all occur simultaneously but independently.
   A) Schachter-Singer two-factor
   B) Cannon-Bard
   C) James-Lange
   D) “common sense”

12. At dinner, when John picks up his fork, his _____ nervous system controls the movement of his finger. His _____ nervous system regulates his stomach and controls the digestion of food.
   A) autonomic; autonomic
   B) autonomic; somatic
   C) somatic; autonomic
   D) somatic; somatic

13. Damage to the right hemisphere will MOST likely disrupt a person's ability to:
    A) balance a checkbook.
    B) recognize faces.
    C) do logic problems.
    D) give speeches.

14. Botulinum poisoning (food poisoning) causes paralysis by blocking the release of _____, and curare paralyzes by occupying the receptor sites for _____.
    A) acetylcholine; acetylcholine
    B) acetylcholine; GABA
    C) GABA; acetylcholine
    D) GABA; GABA

15. The amount of space devoted to each part of the body in the motor cortex is:
    A) proportional to the actual size of that part of the body.
    B) proportional to the complexity and precision of movement of which that part of the body is capable.
    C) the same for all body parts.
    D) greater for your torso than for your hands.

## Answer Key

1. A
2. D
3. B
4. B
5. B
6. C
7. C
8. D
9. C
10. D
11. B
12. C
13. B
14. A
15. B