Chapter 2 Brain and Behaviour

MULTIPLE CHOICE

1. What is the proper name for nerve cells?
   a. somas
   b. nuclei
   c. neurons
   d. neurilemmas

   ANS: C PTS: 1 REF: 54 BLM: remember

2. Everything you do, think, or feel originates within which of the following cells?
   a. ions
   b. somas
   c. synapses
   d. neurons

   ANS: D PTS: 1 REF: 54 BLM: remember

3. What are the major parts of the neuron?
   a. dendrites, nucleus, soma, and synapse
   b. dendrites, soma, cell body, and neurilemma
   c. dendrites, axon, soma, and synapse
   d. dendrites, soma, axon, and axon terminal

   ANS: D PTS: 1 REF: 54 BLM: remember

4. Which part of the neuron transmits (conducts) information?
   a. the axon
   b. the dendrites
   c. the soma
   d. the nucleus

   ANS: A PTS: 1 REF: 54 BLM: remember

5. In what order do signals typically pass through a neuron?
   a. soma, axon, dendrite, axon terminal
   b. axon, dendrite, soma, axon terminal
   c. dendrite, soma, axon, axon terminal
   d. dendrite, axon, soma, axon terminal

   ANS: C PTS: 1 REF: 54 BLM: remember

6. Which part of the neuron is most likely to integrate messages?
   a. the soma
   b. the axon
   c. the axon terminals
   d. the dendrites

   ANS: A PTS: 1 REF: 54 BLM: remember

7. Approximately how many neurons are in the human brain?
   a. 1 billion
   b. 5 billion
   c. 50 billion
   d. 100 billion

   ANS: D PTS: 1 REF: 54 BLM: remember

8. Which part of a neuron receives a signal from another neuron?
   a. the dendrites
   b. the neurotransmitter
   c. the axon
   d. the soma

   ANS: A PTS: 1 REF: 54 BLM: remember

9. Which part of the neuron has branching fibres that link up with the dendrites and somas of adjoining neurons?
   a. the neurilemma
   b. the ion channels
   c. the axon terminals
   d. the terminal vesicles

   ANS: C PTS: 1 REF: 54-55 BLM: remember

10. An inactive neuron is said to be in which state?
    a. resting potential
    b. depolarization
    c. action potential
    d. ionic potential

    ANS: A PTS: 1 REF: 56 BLM: remember

11. Which of the following occurs when a neuron reaches its threshold?
    a. volume potential
    b. ion potential
    c. action potential
    d. dendrite potential

    ANS: C PTS: 1 REF: 56 BLM: remember

12. During which of the following states does the interior of the axon briefly become positive?
    a. the resting potential
    b. the action potential
    c. the ionic potential
    d. the resting polarization

    ANS: B PTS: 1 REF: 56 BLM: remember

13. What is the name for a nerve impulse that sweeps down the axon at up to 320 kilometres per hour?
    a. an action potential
    b. a resting potential
    c. an ionic potential
    d. a synaptic potential

    ANS: A PTS: 1 REF: 56 BLM: remember

14. During the resting potential, to what is the axon's membrane impermeable?
    a. potassium ions
    b. chlorine ions
    c. sodium ions
    d. iodine ions

    ANS: C PTS: 1 REF: 56 (Fig. 2.2) BLM: remember

15. When the neuron is in a resting state, which chemicals lie outside the neuron?
    a. sodium ions that haven't picked up a charge
    b. chloride ions
    c. potassium and chloride ions
    d. positive sodium ions

    ANS: D PTS: 1 REF: 56 (Fig. 2.2) BLM: remember

16. When the axon's ion channels open during an action potential, what type of ions rush into the cell?
    a. sodium ions
    b. potassium ions
    c. chlorine ions
    d. iodine ions

    ANS: A PTS: 1 REF: 56 (Fig. 2.2) BLM: remember

17. How fast does a nerve impulse sweep through a neuron?
    a. at a maximum of 320 kilometres an hour
    b. at the speed of light
    c. at varying speeds depending on the neuron's myelination
    d. at varying speeds depending on the neuron's level of excitation

    ANS: A PTS: 1 REF: 56 BLM: remember

18. Regarding neuronal firing, what is meant by the "all-or-nothing event"?
    a. Nerve cells are continuously active.
    b. Action potentials occur completely, or not at all.
    c. An action current crosses the synapse completely, or not at all.
    d. All of the neurons in the brain fire, or none of them fire.

    ANS: B PTS: 1 REF: 57 BLM: remember

19. To what part of the neuron does the "all-or-nothing event" apply?
    a. the axon
    b. the soma
    c. the dendrite
    d. the synapse

    ANS: A PTS: 1 REF: 57 BLM: remember

20. What is referred to as the *negative after-potential* of a neuron?
    a. the time when the potential briefly drops below its resting level and becomes less willing to fire
    b. the time necessary for transmission across the synapse
    c. the length of time a neuron can fire continuously
    d. the time necessary for a message to travel from the cell body to the end of the axon

    ANS: A PTS: 1 REF: 58 BLM: remember

21. A neuron's axon has just fired and released chemicals into the synapse. The action potential drops below its resting level and is therefore less able to fire. Other neurons in the area are asking for more chemicals, but it replies, "I can't right now, I have to take a break." What do we call this "break"?
    a. a negative after-potential
    b. an action potential
    c. a synaptic potential
    d. a residual period

    ANS: A PTS: 1 REF: 58 BLM: higher order

22. What is meant by the discharge of a nerve impulse?
    a. It refers to neurotransmitters becoming stuck within the axon.
    b. It is the same process as an "all-or-nothing event."
    c. It refers to neurotransmitters entering the axon.
    d. It is the same process as a synaptic potential

    ANS: B PTS: 1 REF: 56-57 BLM: remember

23. What do we call the tiny gaps that separate neurons from one another?
    a. synapses
    b. synaptic vesicles
    c. axonic junctions
    d. ionic junctions

    ANS: A PTS: 1 REF: 58 BLM: remember

24. What is the name of the microscopic space between two neurons?
    a. ionic gap
    b. encephalin
    c. axon terminal
    d. synapse

    ANS: D PTS: 1 REF: 58 BLM: remember

25. What do neurotransmitters have to travel across in order to travel between cells?
    a. receptors
    b. synapses
    c. cell bodies
    d. axonic junctions

    ANS: B PTS: 1 REF: 58 BLM: remember

26. What is the name for chemicals that are stored within vesicles and either excite or inhibit other neurons?
    a. synapses
    b. somas
    c. inhibitors
    d. neurotransmitters

    ANS: D PTS: 1 REF: 58 BLM: remember

27. What is the term for the tiny areas on the cell membrane that are sensitive to neurotransmitters?
    a. receptor sites
    b. synaptic sites
    c. axonic sites
    d. ionic sites

    ANS: A PTS: 1 REF: 59 BLM: remember

28. Chemical communication between neurons involves the release of which of the following?
    a. neurilemmas
    b. neurotransmitters
    c. somas
    d. telodendrias

    ANS: B PTS: 1 REF: 58 BLM: remember

29. Curare causes paralysis by attaching to receptor sites on muscles, competing with a type of neurotransmitter. With which type of neurotransmitter does curare compete?
    a. dopamine
    b. acetylcholine
    c. serotonin
    d. enkephalins

    ANS: B PTS: 1 REF: 59 BLM: remember

30. In helping to relieve pain and stress, the brain produces opiate-like neural regulators. What are these regulators called?
    a. dopamine
    b. neural networks
    c. enkephalins
    d. *norepinephrine*

    ANS: C PTS: 1 REF: 59 BLM: remember

31. What is the function of neuropeptides?
    a. Neuropeptides carry messages across synapses, as do neurotransmitters.
    b. Neuropeptides regulate the activity of neurotransmitters.
    c. Neuropeptides are essential in activating muscles.
    d. Neuropeptides increase the speed of the action potential.

    ANS: B PTS: 1 REF: 59 BLM: remember

32. Which neurotransmitter seems to facilitate the "runner's high," acupuncture, and the euphoria sometimes associated with childbirth?
    a. acetylcholine
    b. serotonin
    c. endorphins
    d. dopamine

    ANS: C PTS: 1 REF: 60 BLM: higher order

33. Which of the following is involved in regulating the activity of neurons?
    a. neuropeptides
    b. acetylcholine
    c. reflex arcs
    d. resting potentials

    ANS: A PTS: 1 REF: 59 BLM: remember

34. What is the name for the fatty substance wrapped around axons?
    a. myelin
    b. neurilemma
    c. soma
    d. nodes of Ranvier

    ANS: A PTS: 1 REF: 58 BLM: remember

35. What is the function of the myelin that is wrapped around the axon?
    a. Myelin helps nerve cells remain continuously active.
    b. Myelin helps electrical currents cross the synapse.
    c. Neurons need myelin to fire.
    d. Myelin protects, insulates, and speeds the transmission of a nerve impulse.

    ANS: D PTS: 1 REF: 58 BLM: remember

36. Adriana suffers from a degenerative disorder that is causing the myelin in her brain to disintegrate. How will this affect transmission of neural information?
    a. Transmission is likely to slow down.
    b. Transmission is likely to speed up.
    c. There will be no effect on transmission.
    d. The effect will depend on Adriana's diet.

    ANS: A PTS: 1 REF: 58 BLM: higher order

37. Multiple sclerosis is a disease in which the immune system attacks and destroys myelin. Which neuronal structure is being attacked by this disease?
    a. synapses
    b. axons
    c. dendrites
    d. mitochondria

    ANS: B PTS: 1 REF: 58 BLM: higher order

38. Which of the following is a recent development in the understanding of the brain's neurobiology?
    a. the sympathetic syndrome
    b. neurogenesis
    c. the role of connector neurons
    d. neurilemmic tunnels

    ANS: B PTS: 1 REF: 60 BLM: remember

39. What do we call the production of new brain cells?
    a. fluidgenesis
    b. resiliency
    c. neurogenesis
    d. brain plasticity

    ANS: C PTS: 1 REF: 60 BLM: remember

40. What is the name for immature cells that, after being injected into damaged areas of the brain, mature into the necessary types of missing or damaged cells?
    a. motor neurons
    b. neural regulators
    c. sensory neurons
    d. stem cells

    ANS: D PTS: 1 REF: 61 BLM: remember

41. In a general sense, what is neuroplasticity?
    a. the growth of new nervous systems
    b. the reconnection of old synapses
    c. the structural changes in response to complex or demanding environments
    d. the destruction of synaptic connections

    ANS: C PTS: 1 REF: 61 BLM: remember

42. What are the two major components of the nervous system?
    a. the somatic and autonomic nervous systems
    b. the central and somatic nervous systems
    c. the central and peripheral nervous systems
    d. the sympathetic and parasympathetic nervous systems

    ANS: C PTS: 1 REF: 62 BLM: remember

43. Anna was in a car accident and received extensive head injuries that impaired her ability to speak. Which component of her nervous system was most likely damaged?
    a. sympathetic nervous system
    b. peripheral nervous system
    c. central nervous system
    d. autonomic nervous system

    ANS: C PTS: 1 REF: 62 BLM: higher order

44. What is the main component of the nervous system?
    a. the central nervous system
    b. the peripheral nervous system
    c. the somatic nervous system
    d. the autonomic nervous system

    ANS: A PTS: 1 REF: 62 BLM: remember

45. Which of the following comprises the peripheral nervous system?
    a. the brain
    b. the brain and spinal cord
    c. components that lie outside the brain and spinal cord
    d. sensory neurons

    ANS: C PTS: 1 REF: 62 BLM: remember

46. What are the main divisions of the peripheral nervous system?
    a. somatic and autonomic systems
    b. sympathetic and parasympathetic systems
    c. afferent and efferent systems
    d. reticular and limbic systems

    ANS: A PTS: 1 REF: 62 BLM: remember

47. Steve raises his hand in class to answer a question. Going from the spinal cord to the arm muscles, this command would travel through which nervous system?
    a. the somatic system
    b. the autonomic system
    c. the sympathetic system
    d. the parasympathetic system

    ANS: A PTS: 1 REF: 62 BLM: higher order

48. Which system controls food digestion?
    a. the autonomic nervous system
    b. the central nervous system
    c. the somatic nervous system
    d. the endocrine system

    ANS: A PTS: 1 REF: 62 BLM: higher order

49. Which of the following is a division of the peripheral nervous system?
    a. the spinal cord
    b. the sympathetic nervous system
    c. the parasomatic nervous system
    d. the central nervous system

    ANS: B PTS: 1 REF: 63 BLM: higher order

50. Which of the following is known as the "fight or flight" response system, because of its importance in preparing us to respond to stressful events?
    a. the somatic system
    b. the peripheral system
    c. the sympathetic system
    d. the parasympathetic system

    ANS: C PTS: 1 REF: 63 BLM: remember
    NOT: WWW

51. When a big, nasty, dog is chasing you, which nervous system is directly responsible for producing the "fight or flight" response?
    a. the somatic system
    b. the autonomic system
    c. the sympathetic system
    d. the parasympathetic system

    ANS: C PTS: 1 REF: 63 BLM: higher order

52. Which nervous system's role is to relax the body, returning it to a lower level of arousal?
    a. the sympathetic system
    b. the parasympathetic system
    c. the somatic system
    d. the autonomic system

    ANS: B PTS: 1 REF: 63 BLM: remember

53. What three types of cells are involved in a reflex arc?
    a. sensory neuron, motor neuron, and the nodes of Ranvier
    b. dendrite, axon, axon terminal
    c. sensory neuron, motor neuron, and connector neuron
    d. dendrite, soma, axon

    ANS: C PTS: 1 REF: 64 BLM: remember

54. Which type of neurons pick up information from the environment through specialized receptor organs, and then carry this information to the brain?
    a. sensory neurons
    b. motor neurons
    c. connector neurons
    d. dendritic neurons

    ANS: A PTS: 1 REF: 64 BLM: remember

55. Which neurons take information away from the brain, and toward muscles and glands?
    a. connector neurons
    b. motor neurons
    c. sensory neurons
    d. dendrite neurons

    ANS: B PTS: 1 REF: 64 BLM: remember

56. What is a basic response pattern, organized in the spinal cord?
    a. an autonomic reflex
    b. a cranial arc
    c. an effector reflex
    d. a reflex arc

    ANS: D PTS: 1 REF: 64 BLM: remember

57. A barefoot girl steps on a nail, then jerks her foot back in response to the pain. Which component of the nervous system is involved in this response?
    a. the brain
    b. the spinal cord
    c. sensory neurons
    d. sympathetic neurons

    ANS: B PTS: 1 REF: 64 BLM: higher order

58. Which of the following statements briefly describes reflexes?
    a. Reflexes take place in the muscles.
    b. Reflexes occur without instructions from the brain.
    c. Reflexes are voluntary.
    d. Reflexes send information or signals to the brain.

    ANS: B PTS: 1 REF: 64 BLM: remember

59. What is the name for the approach used to assess changes in how we behave, think, and take in various sensory information?
    a. ablations
    b. clinical studies
    c. deep lesionings
    d. ESB (electrical stimulation of the brain)

    ANS: B PTS: 1 REF: 65 BLM: remember

60. Electrodes have been used in a variety of ways to investigate the function of the brain. Which of the following involves the use of electrodes?
    a. deep lesioning
    b. ablation
    c. electrical stimulation of muscles
    d. recording the simultaneous activity of millions of neurons

    ANS: A PTS: 1 REF: 65 BLM: remember

61. Steve is using magnetic resonance imaging (MRI) to determine if there are any structural abnormalities in the brains of people who suffer from Parkinson's disease. What type of scientist is Steve?
    a. a biopsychologist
    b. a developmental psychologist
    c. a cognitive psychologist
    d. a pharmacologist

    ANS: A PTS: 1 REF: 65 BLM: higher order

62. If researchers wished to study the response of an individual neuron in the brain to a particular sensory stimulus, what would they most likely use?
    a. deep lesioning
    b. a micro-electrode
    c. an electroencephalograph (EEG)
    d. computed tomography scanning (CT)

    ANS: B PTS: 1 REF: 66 BLM: higher order
    NOT: WWW

63. Which technique measures the electrical activity of the brain?
    a. magnetic resonance imaging (MRI)
    b. computed tomography scanning (CT)
    c. positron emission tomography (PET)
    d. electroencephalogram (EEG)

    ANS: D PTS: 1 REF: 66 BLM: remember

64. Clarence was in a car accident, and the doctor suspects that he may have suffered structural damage to the brain. Which of the following tests would give us a three-dimensional model of Clarence's brain?
    a. magnetic resonance imaging (MRI)
    b. positron emission tomography (PET)
    c. computed tomography scanning (CT)
    d. electroencephalogram (EEG)

    ANS: A PTS: 1 REF: 67 BLM: higher order

65. Which brain-imaging equipment would most likely be used to assess the pleasure felt from eating, using drugs, or feeling love for another person?
    a. magnetic resonance imaging (MRI)
    b. computed tomography scanning (CT)
    c. positron emission tomography (PET)
    d. micro-electrode recording

    ANS: C PTS: 1 REF: 67 BLM: higher order

66. Derrick was a subject in a study in which the glucose in his brain was marked with a radioactive substance, identifying especially active brain areas. Derrick participated in a study that employed what imaging technique?
    a. electroencephalogram (EEG)
    b. magnetic resonance imaging (MRI)
    c. computed tomography scanning (CT)
    d. positron emission tomography (PET)

    ANS: D PTS: 1 REF: 67 BLM: higher order

67. Which of the following instruments produces a colour-coded image of the brain's activity?
    a. computed tomography scanning (CT)
    b. electroencephalogram (EEG)
    c. magnetic resonance imaging (MRI)
    d. positron emission tomography (PET)

    ANS: D PTS: 1 REF: 67 BLM: remember

68. What part of the brain is only 3 millimetres thick, yet contains 70 percent of the neurons of the central nervous system?
    a. the cerebral cortex
    b. the cerebrum
    c. the cerebellum
    d. the corpus callosum

    ANS: A PTS: 1 REF: 69 BLM: remember

69. Where would you find the most obvious difference between the human brain and the brain of a fish?
    a. the hypothalamus
    b. the thalamus
    c. the cerebellum
    d. the cerebral cortex

    ANS: D PTS: 1 REF: 69 BLM: higher order

70. What is the largest brain area in humans?
    a. the cerebellum
    b. the cerebrum
    c. the frontal lobes
    d. the grey matter of the corpus callosum

    ANS: B PTS: 1 REF: 69 BLM: remember

71. Within higher-order animals, what do we call the increased size and wrinkling of the cerebral cortex?
    a. cerebralization
    b. hemispherization
    c. corticalization
    d. reticulation

    ANS: C PTS: 1 REF: 69 BLM: remember

72. What have positron emission tomography images (PET scans) revealed to us about the connection between our brains and problem-solving abilities?
    a. We use less than 10 percent of our brains when we try to solve problems.
    b. Smarter problem solvers' brains use more energy than poorer problem solvers' brains.
    c. Poorer problem solvers' brains use more energy than smarter problem solvers' brains.
    d. There are no specific areas of the brain dedicated to problem solving.

    ANS: C PTS: 1 REF: 68-69 BLM: remember

73. Which of the following is a common effect of having a stroke?
    a. positive speech effects
    b. motor neglect
    c. the experience of an "alien" arm
    d. having a split brain experience

    ANS: C PTS: 1 REF: 70 BLM: remember

74. A stroke causes damage to the motor area of a woman's left hemisphere. What part of her body would be impaired?
    a. the right side
    b. the left side
    c. the right cerebral cortex
    d. the left cerebral cortex

    ANS: A PTS: 1 REF: 70-71 BLM: higher order

75. As a result of a stroke, a person has damage to the right hemisphere of the somatosensory area. This would cause a loss of which ability?
    a. movement on the left side of the body
    b. movement on the right side of the body
    c. feeling on the left side of the body
    d. feeling on the right side of the body

    ANS: C PTS: 1 REF: 70-71 BLM: higher order

76. Henry, a stroke victim, displays spatial neglect. Which of the following would he be most likely to do?
    a. ignore the side of the body on the same side as the cerebral damage
    b. ignore his own paralyzed arm or leg
    c. draw a picture with the upper half missing
    d. ignore the side of the body opposite to the cerebral damage

    ANS: B PTS: 1 REF: 70-71 BLM: higher order

77. In split-brain surgery, a surgeon disconnects the two hemispheres by severing which of the following?
    a. the cerebellum
    b. the hypothalamus
    c. the corpus callosum
    d. the pituitary gland

    ANS: C PTS: 1 REF: 71 BLM: remember

78. Velishea has severe epileptic seizures that cannot be controlled by medication. Therefore, her doctor suggests a surgery that might help. What would this surgery involve?
    a. cutting the corpus callosum
    b. removing the hippocampus
    c. stimulating the brain's pleasure centres
    d. severing Broca's area

    ANS: A PTS: 1 REF: 71 BLM: higher order

79. Based on research with people with split brain, we know that humans have which of the following?
    a. hemispheric specialization
    b. cross lateralization
    c. corticalization
    d. pleasure centres

    ANS: A PTS: 1 REF: 71 BLM: remember

80. Based on research with patients with split brain, we know that the right hemisphere is specialized for which of the following?
    a. spatial abilities
    b. facial recognition
    c. language and speech
    d. dance, movement, and musical appreciation

    ANS: B PTS: 1 REF: 72 BLM: remember

81. According to hemispheric specialization theory, for which of the following is the average person's left hemisphere specialized?
    a. drawing pictures
    b. musical talent
    c. speech
    d. recognizing and identifying faces

    ANS: C PTS: 1 REF: 72 BLM: remember

82. A person suffers a stroke and loses the ability to recognize familiar faces. What part of the brain likely suffered damage?
    a. the frontal lobe
    b. the occipital lobe
    c. the right hemisphere
    d. the left hemisphere

    ANS: C PTS: 1 REF: 72 BLM: higher order

83. Which brain area is most involved in our appreciation of music, art, and dance?
    a. the hippocampus
    b. the right hemisphere
    c. the association area
    d. the left hemisphere

    ANS: B PTS: 1 REF: 72 BLM: remember

84. Your lips are more sensitive than your elbow. How is this difference reflected in brain structure?
    a. A larger area of somatosensory cortex is associated with your lips than with your elbow.
    b. A larger area of the occipital lobes is associated with your lips than with your elbow.
    c. A larger area of the motor cortex is associated with your lips than with your elbow.
    d. A larger area of the cerebellum is associated with your lips than with your elbow.

    ANS: A PTS: 1 REF: 73 BLM: higher order

85. What part of the cortex processes visual information?
    a. the occipital lobe
    b. the frontal lobe
    c. the temporal lobe
    d. the parietal lobe

    ANS: A PTS: 1 REF: 73 BLM: remember

86. If a positron emission tomography (PET) scan or a functional magnetic resonance imaging (fMRI) scan was done on you while listening to music, in which lobe would activity register most strongly?
    a. the temporal lobe
    b. the parietal lobe
    c. the frontal lobe
    d. the occipital lobe

    ANS: A PTS: 1 REF: 73 BLM: higher order

87. As you sit at the airport waiting for your plane, the pressure on your bottom becomes unbearable. In which lobe is the sensation of the seat against your bottom being processed?
    a. the frontal lobe
    b. the parietal lobe
    c. the occipital lobe
    d. the temporal lobe

    ANS: B PTS: 1 REF: 73 BLM: higher order

88. Which of the following is a lobe of the cortex?
    a. amygdala
    b. thalamus
    c. parietal
    d. limbic

    ANS: C PTS: 1 REF: 73 BLM: remember

89. Where is the motor cortex located?
    a. in the frontal lobe
    b. in the occipital lobe
    c. in the parental lobe
    d. in the temporal lobe

    ANS: A PTS: 1 REF: 74 BLM: remember

90. Voluntary muscle movements originate in an area of the cortex called the motor area. Where is the motor area located?
    a. in the somatosensory lobe
    b. in the parietal lobe
    c. in the frontal lobe
    d. in the temporal lobe

    ANS: C PTS: 1 REF: 74 BLM: remember
    NOT: WWW

91. After Phineas Gage experienced a serious blow to the head, he had dramatic personality changes. What part of his brain was damaged?
    a. the thalamus
    b. the temporal lobe
    c. the parietal lobe
    d. the frontal lobe

    ANS: D PTS: 1 REF: 74 BLM: higher order

92. Which of the following does the case of Phineas Gage demonstrate?
    a. that a person cannot live without the frontal lobe
    b. that a person cannot walk, talk, or think if the frontal lobe is damaged
    c. that the frontal lobes influence personality
    d. that the frontal lobes do not have a specific function

    ANS: C PTS: 1 REF: 74-75 BLM: remember

93. Which of the following best characterizes the number of brain cells in the motor cortex?
    a. There are more cells for smaller body parts.
    b. There are more cells for larger body parts.
    c. There are more cells for body parts that are responsible for complex movements.
    d. The cells are distributed evenly for all body parts.

    ANS: C PTS: 1 REF: 74 BLM: remember

94. Which of the following body parts has the greatest representation on the motor cortex?
    a. shoulders
    b. neck
    c. torso
    d. fingers

    ANS: D PTS: 1 REF: 74 BLM: higher order

95. If Broca's area is damaged by a stroke, which of the following would occur?
    a. The damage would be just as likely to occur in the left or the right frontal lobe.
    b. Women would be more likely than men to compensate for the damage.
    c. Men would be unable to understand the meaning of words.
    d. Both males and females would have problems understanding the meaning of words.

    ANS: B PTS: 1 REF: 75 BLM: remember

96. After damage to Broca's area, why do women tend to regain more of their lost language abilities than men?
    a. because Broca's area in women is larger than in men, making it harder to damage completely in an accident
    b. because women tend to have better language abilities to begin with
    c. because women tend to use both hemispheres of the brain for language
    d. because men become more depressed after accidents, adversely affecting their brains

    ANS: C PTS: 1 REF: 75 BLM: remember

97. What area is involved in articulating speech sounds and words?
    a. Broca's area
    b. the somatosensory area
    c. Wernicke's area
    d. the occipital lobe

    ANS: A PTS: 1 REF: 75 BLM: remember

98. Following her stroke, Dorothy had extreme difficulty speaking, but could understand what she read and what was being said to her. What area of her brain was likely damaged?
    a. Wernicke's area
    b. Broca's area
    c. the corpus callosum
    d. the hippocampus

    ANS: B PTS: 1 REF: 75 BLM: higher order

99. What area of the brain is involved in understanding speech sounds?
    a. Broca's area
    b. the somatosensory area
    c. Wernicke's area
    d. the occipital lobe

    ANS: C PTS: 1 REF: 75 BLM: remember

100. What are the three main subdivisions of the subcortex?
    a. brainstem, cerebrum, and cerebellum
    b. forebrain, midbrain, and cortex
    c. medulla, pons, and cerebellum
    d. hindbrain, midbrain, and forebrain

    ANS: D PTS: 1 REF: 77 BLM: remember

101. Severe damage to which of the following would be most likely to result in death?
    a. the pons
    b. the amygdala
    c. the cerebellum
    d. the medulla

    ANS: D PTS: 1 REF: 77 BLM: remember

102. While playing tennis, Christina admires Sarina's control of the racket and her finely coordinated movements. What part of Sarina's brain must be highly developed in order to facilitate such movements?
a. the cerebellum
b. the reticular formation
c. the medulla
d. the pons

ANS: A PTS: 1 REF: 77 BLM: higher order

103. A young gymnast is feeling dizzy and is unable to stay on the balance beam. Which part of her brain is affected?
a. the pons
b. the hypothalamus
c. the reticular formation
d. the cerebellum

ANS: D PTS: 1 REF: 77 BLM: higher order
NOT: WWW

104. A golfer is practising his swings. What part of the brain will be especially active so he can perform his routine successfully?
a. the hypothalamus
b. the pons
c. the cerebellum
d. the medulla

ANS: C PTS: 1 REF: 77 BLM: higher order

105. Which part of the brain controls the most complex aspects of thought and behaviour?
a. the forebrain
b. the midbrain
c. the hindbrain
d. the brainstem

ANS: A PTS: 1 REF: 78 BLM: remember
NOT: WWW

106. Which part of the brain is responsible for hunger, thirst, sex, and temperature regulation?
a. the reticular formation
b. the pons
c. the frontal lobe
d. the hypothalamus

ANS: D PTS: 1 REF: 78 BLM: remember

107. A psychology student destroys a part of a rat's brain that affects sexual behaviour and body temperature. What part of the brain has been damaged?
a. the thalamus
b. the hypothalamus
c. the limbic system
d. the medulla

ANS: B PTS: 1 REF: 78 BLM: higher order

108. You're becoming extremely hungry, thirsty, and warm while studying. Which brain structure may trigger these feelings?
    a. the corpus callosum
    b. the hippocampus
    c. the thalamus
    d. the hypothalamus

    ANS: D PTS: 1 REF: 78 BLM: higher order

109. Which brain structure regulates the secretion of hormones from the pituitary gland?
    a. the hypothalamus
    b. the hippocampus
    c. the amygdala
    d. the thalamus

    ANS: A PTS: 1 REF: 78 BLM: remember

110. What is one of the functions of the amygdala?
    a. delivery of electrical stimulation to the limbic system
    b. stopping electrical stimulation to the limbic system
    c. stimulating the "pleasure" centres of the limbic system
    d. helping us react to dangerous stimuli through a quick fear response

    ANS: D PTS: 1 REF: 78 BLM: remember

111. A researcher activates an electrode that is placed in a cat's limbic system. The cat suddenly jumps up and is completely terrified. What part of the limbic system was stimulated?
    a. the hippocampus
    b. the amygdala
    c. the cortex
    d. the thalamus

    ANS: B PTS: 1 REF: 78 BLM: higher order

112. Tammie suffered extensive head injuries in a car accident and is unable to form new memories. Which brain structure has most likely been damaged?
    a. the hypothalamus
    b. the hippocampus
    c. the somatosensory cortex
    d. the thalamus

    ANS: B PTS: 1 REF: 79 BLM: higher order

113. Oversecretion of the adrenal sex hormones can have a variety of effects. Which of the following is one of these effects?
    a. delayed sexual maturity
    b. excessive facial hair on a woman's face
    c. homosexuality
    d. shorter than average height

    ANS: B PTS: 1 REF: 82 BLM: remember

114. What are two disorders of the pituitary gland?
    a. dwarfism and acromegaly
    b. virilism and acromegaly
    c. mental retardation and dwarfism
    d. gigantism and premature puberty

    ANS: A PTS: 1 REF: 81 BLM: higher order

115. What are both the "master gland" and the gland this "master gland" is directed by?
    a. the pineal gland and the thalamus
    b. the thyroid and the RAS
    c. the pituitary gland and the hypothalamus
    d. the adrenal gland and the cortex

    ANS: C PTS: 1 REF: 81 BLM: remember

116. Which of the following applies to the language-producing dominant hemisphere of the brain?
    a. Ninety-seven percent of right-handed people process speech from the left hemisphere.
    b. Ninety-eight percent of left-handed people produce speech from the left hemisphere.
    c. The language-producing dominant hemisphere cannot be positively determined through the observation of hand position while writing.
    d. The language-producing dominant hemisphere can be determined only by briefly anaesthetizing one cerebral hemisphere at a time.

    ANS: A PTS: 1 REF: 86 BLM: remember

COMPLETION

1. When a basketball player grasps a basketball, information about the feel of the basketball is transmitted to the spinal cord by _____.

    ANS: sensory neurons

    PTS: 1 DIF: application

2. Some axons are covered with a fatty coating called _____.

    ANS: myelin

    PTS: 1 DIF: factual

3. In split-brain surgery, doctors must surgically sever the_____.

    ANS: corpus callosum

    PTS: 1 DIF: factual

4. The all-or-nothing law refers only to the _____.

    ANS: axon

    PTS: 1 DIF: factual

5. When the neuron is in the resting state, the majority of the ions lying outside the axon are positively charged _____ ions.

   ANS: sodium

   PTS: 1 DIF: factual

6. The fact that once a neural impulse starts down an axon it will continue until it reaches the end of the axon is known as the _____ law.

   ANS: all-or-nothing

   PTS: 1 DIF: factual

7. When a neuron is neither transmitting nor receiving information, it is said to be in a(n) _____ state.

   ANS: resting

   PTS: 1 DIF: factual

8. A child places her hand on a hot stove and immediately yanks her hand back because the _____ neuron controls the simple reflex.

   ANS: connector

   PTS: 1 DIF: application

9. The brain and the spinal cord make up the nervous system division known as the _____.

   ANS: central nervous system

   PTS: 1 DIF: factual

10. The awkward gait of a person who has had too much to drink is caused by the suppression of neurons in the _____.

    ANS: cerebellum

    PTS: 1 DIF: application

11. Vital reflexes such as heart rate, respiration, and blood pressure are controlled by a structure in the brain called the _____.

    ANS: medulla

    PTS: 1 DIF: factual

12. The area of the brain that is involved in understanding speech sounds is called _____.

    ANS: Wernicke's area

    PTS: 1 DIF: factual

13. The left and right hemispheres of the brain are connected by a bundle of nerve fibres called the _____.

    ANS: corpus callosum

    PTS: 1 DIF: factual

14. The somatosensory area is located in the part of the cortex called the _____.

    ANS: parietal lobe

    PTS: 1 DIF: factual

15. The part of the cortex that is involved in vision is called the _____.

    ANS: occipital lobe

    PTS: 1 DIF: factual

16. When the neural impulse reaches the end of a neuron, neurotransmitters are released into the _____.

    ANS: synapse

    PTS: 1 DIF: factual

17. Perry was hit in the back of the head by a baseball, and now has problems seeing. He has most likely experienced damage to the _____.

    ANS: occipital lobe

    PTS: 1 DIF: application

ESSAY

1. What are the functions of sensory neurons, motor neurons, and connector neurons?

   ANS:
   Student responses will vary.

   PTS: 1

2. What is the difference between action potential and resting potential?

   ANS:
   Student responses will vary.

   PTS: 1

3. Define and explain what happens during the negative after-potential.

   ANS:
   Student responses will vary.

   PTS: 1

4. Pick any two neurotransmitters and explain their role in behaviour.

   ANS:
   Student responses will vary.

   PTS: 1

5. Define and label the four lobes of the cortex.

   ANS:
   Student responses will vary.

   PTS: 1

6. List and define the basic parts of the neuron.

   ANS:
   Student responses will vary.

   PTS: 1

7. How did Phineas Gage's accident contribute to our understanding of the brain?

   ANS:
   Student responses will vary.

   PTS: 1

8. What roles do the sympathetic and parasympathetic systems play?

   ANS:
   Student responses will vary.

   PTS: 1

9. Briefly list the specialized abilities of the left and right hemispheres.

   ANS:
   Student responses will vary.

   PTS: 1

10. What does lateralization mean?

    ANS:
    Student responses will vary.

    PTS: 1

11. What are endorphins, dopamine, and acetylcholine? Describe the roles they play in behaviour.

    ANS:
    Student responses will vary.

    PTS: 1

12. Identify the major divisions of the nervous system, and describe their functions.

    ANS:
    Student responses will vary.

    PTS: 1

13. Describe the function of the thalamus, cerebellum, and hypothalamus.

    ANS:
    Student responses will vary.

    PTS: 1

14. Describe the somatosensory and motor functions of the cortex. Be sure to specify on which lobe they are located.

    ANS:
    Student responses will vary.

    PTS: 1

15. Define the “fight or flight” response.

ANS:
Student responses will vary.

PTS: 1

16. Name and describe the subdivisions of the autonomic nervous system.

ANS:
Student responses will vary.

PTS: 1

17. Name and define the three major subdivisions of the brain.

ANS:
Student responses will vary.

PTS: 1

18. Name and define the forebrain structures.

ANS:
Student responses will vary.

PTS: 1

19. Describe the location and function of the adrenal glands.

ANS:
Student responses will vary.

PTS: 1

20. Describe the spinal cord and its functions.

ANS:
Student responses will vary.

PTS: 1

21. Describe the role of receptor sites in the communication process between neurons.

ANS:
Student responses will vary.

PTS: 1

22. Define myelin and discuss its purpose.

    ANS:
    Student responses will vary.

    PTS: 1

23. Name and describe the two major divisions of the nervous system.

    ANS:
    Student responses will vary.

    PTS: 1

24. Identify the five main imaging techniques used to study the brain, and discuss their different uses.

    ANS:
    Student responses will vary.

    PTS: 1

