

Chapter 2--Cognitive Neuroscience

Student: _____

1. The approach to studying the brain in order to understand what specific part of the brain controls what specific skills or behaviors is called _____.
 - A. synthesis
 - B. localization of function
 - C. ecological validity
 - D. lobotomy

2. These cells in the brain transmit electrical signals from one location to another in the nervous system.
 - A. amygdala
 - B. dopamine receptor
 - C. metabolic
 - D. neuron

3. The junction between terminal buttons of one neuron with the dendrites of other neurons.
 - A. synapse
 - B. terminal button
 - C. nodes of ranvier
 - D. synaptic terminal

4. At the end of the branches of an axon are the _____, which look like small knobs.
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5. Signals between neurons occur when these chemical messengers transmit information from one neuron to the next across the synaptic gap.
 - A. synapse
 - B. hormones
 - C. neurotransmitters
 - D. neurobinders

6. Identify the three types of chemical substance that are involved in neurotransmission:
- A. monoamine neurotransmitters, amino-acid neurotransmitters, neurobinders.
 - B. monoamine neurotransmitters, amino-acid neurotransmitters, neuropeptides.
 - C. amino-acid neurotransmitters, neurobinders, cerebropeptides.
 - D. monoamine neurotransmitters, neuropeptides, neurobinders.
7. Adrian has Alzheimer's and has a difficult time with his memory. The doctors say that his memory difficulties in part are due to the low levels of ____.
- A. acetylcholine
 - B. dopamine
 - C. dratonin
 - D. serotonin
8. This particular neurotransmitter is associated with attention, reward and reinforcement, learning, and motivational processes.
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10. This technique has been used for centuries in which researchers document the behaviors of individuals thought to have brain damage and then after the person dies, they examine the brain for lesions.
- A. postmortem studies
 - B. in vivo techniques
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 - D. brain damage analysis (BDA)
11. Which of the following is *not* an *in vivo* technique for viewing the structures and functions of the brain?
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 - B. Still-imaging of the brain (e.g., CT scan, MRI scan)
 - C. Examining how radioactive material is transported and used in the brain
 - D. Dissecting the brain to locate possible lesions

12. Tan, a patient of Broca's who had severe speech problems, was capable of uttering only one syllable "Tan" (hence the name). After Tan's death, examination of his brain revealed a number of lesions in the frontal lobe. It was ascertained from this that parts of the frontal lobe are important for speech production. Gathering knowledge from someone about brain function after death with known difficulties would be an example of
- A. Broca's technique.
 - B. Brain Capacity Functional Analysis.
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13. Sandy has a number of electrodes attached to his head. He is probably about to participate in a study involving use of
- A. fMRI.
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- A. motor function.
 - B. hearing.
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23. The limbic system is responsible for
- A. memory retrieval.
 - B. relaying sensory information.
 - C. emotion, motivation, and learning.
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24. All of the following are central interconnected cerebral structures of the limbic system *except* the
- A. primary motor cortex.
 - B. septum.
 - C. amygdala.
 - D. hippocampus.
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 - B. Dizziness, headache, loss of consciousness
 - C. Insomnia, inability to concentrate, restlessness
 - D. Emotionality, weeping, sadness
28. The ____ and ____ play a role in anger, aggression, and fear.
- A. amygdala; hippocampus
 - B. septum; amygdala
 - C. hippocampus; septum
 - D. primary motor cortex; septum
29. Which of the following would most likely involve the use of the septum?
- A. Mike is scared by a man pointing a knife at him.
 - B. Mike remembered a man that had pointed a knife at him.
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30. Which of the following would involve activity in the amygdala?
- A. Wilma sees a large dog.
 - B. Wilma remembered seeing a large dog on the street.
 - C. Wilma gets angry at a dog after it ate her purse.
 - D. Wilma leans over to pet a large dog.
31. The ____ is responsible for the formation of new memories.
- A. thalamus
 - B. hippocampus
 - C. hypothalamus
 - D. aphasia
32. Damage to the hippocampus can result in "loss of memory function" in which old information is still able to be recalled, but the individual is unable to form new memories. This is know as
- A. Benzine syndrome.
 - B. apraxia.
 - C. aphasia.
 - D. Korsakoff's syndrome.
33. Disruption in the hippocampus does *not* seem to result in deficits of what kind of memory?
- A. Declarative memory
 - B. Short-term memory
 - C. Procedural memory
 - D. Long-term memory
34. Wilma has damage to a certain area of her brain. She can remember people and events from long ago, but she cannot remember where she ate lunch today. Judging by her symptoms, Wilma probably has damage to the
- A. hypothalamus.
 - B. hippocampus.
 - C. thalamus.
 - D. corpus callosum.
35. This particular part of the brain is responsible for regulating behavior that is important for the survival of the organism (e.g., fighting, feeding, fleeing, and mating) and "regulating emotions and reactions to stress."
- A. hypothalamus
 - B. thalamus
 - C. pons
 - D. limbic system

36. Dysfunction in the thalamus can lead to a variety of results, including
- A. hypersexuality.
 - B. depression.
 - C. anxiety.
 - D. amnesia.
37. Although the midbrain is not as important in mammals as in nonmammals, it is significant in that it houses the reticular activating system, which is essential in regulating
- A. consciousness, heartbeat, and breathing.
 - B. bodily coordination, balance, and muscle tone.
 - C. breathing, swallowing, and digestion.
 - D. the signals passing from one part of the brain to another.
38. Physicians make a determination of brain death based on the degree of function of the
- A. midbrain.
 - B. brain stem.
 - C. medulla oblongata.
 - D. cerebellum.
39. The ____, located in the hindbrain, is responsible for controlling the heartbeat, and to some extent, breathing, swallowing, and digestion.
- A. pons
 - B. cerebellum
 - C. cerebral cortex
 - D. medulla oblongata
40. This particular part of the hindbrain "contains neural fibers that pass signals from one part of the brain to another" and thus serves as a relay station.
- A. Medulla Oblongata
 - B. Pons
 - C. Cerebellum
 - D. Limbic System
41. This part of the hindbrain is responsible for "coordination, balance, and muscle tone," and also includes memory related to procedural movements.
- A. Hypothalamus
 - B. Amygdala
 - C. Septum
 - D. Cerebellum

42. A code blue has just been announced in a hospital. A patient has stopped breathing. Doctors and medics are rushed to the scene and quickly determine that brain death has not yet occurred. How did the medics know whether the patient was brain dead or not?
- A. They found that there was still activity in the frontal lobe of the patient's brain.
 - B. Once breathing stops, brain death occurs.
 - C. They found that there was still activity in the brain stem.
 - D. They found that the pons was still active.
43. How would someone determine whether there was a possibility of a problem in the function of a patient's medulla oblongata?
- A. The patient might be experiencing both short-term and long-term memory loss.
 - B. The patient might not be able to sense pain or pressure.
 - C. The patient might display irregular aggression patterns.
 - D. The patient might experience heartbeat irregularity and possible breathing problems.
44. Sonia lays in a hospital bed unable to wakeup. Scans of her brain show damage to the ____ which is important for regulating overall level of consciousness/arousal.
- A. corpus callosum
 - B. white matter
 - C. reticular activating system
 - D. medulla oblongata
45. The convolutions of the cerebral cortex comprise ____, which are small grooves; ____, which are raised areas or bulges; and ____, which are large grooves.
- A. sulci; fissures; gyri
 - B. fissures; sulci; gyri
 - C. gyri; fissures; sulci
 - D. sulci; gyri; fissures
46. The cerebral cortex is
- A. the main lobe of the forebrain.
 - B. the bridge between the left and the right hemispheres of the brain.
 - C. a one- to three-millimeter-thick layer that covers the surface of the brain.
 - D. a layer, covering the surface of the brain, that comprises about 60% of the brain.
47. The cerebral cortex is often referred to as ____, whereas the nerve fibers of the brain's interior are often called ____.
- A. contralateral; ipsilateral
 - B. gray matter; white matter
 - C. ipsilateral; contralateral
 - D. white matter; gray matter

48. ____ refers to transmission of information to the opposite side, whereas ____ refers to transmission to the same side.
- A. Contralateral; ipsilateral
 - B. Occipital; frontal
 - C. Ipsilateral; contralateral
 - D. Parietal; temporal
49. Most motor information transmission is
- A. parietal.
 - B. contralateral.
 - C. ipsilateral.
 - D. occipital.
50. The corpus callosum serves to
- A. make certain contralateral transmissions ipsilateral.
 - B. regulate the transmission of information along the cerebral cortex.
 - C. allow transmission of information between the left and right hemispheres.
 - D. transmit information from the left and right hemispheres to the spinal cord.
51. There are two radio stations, one receiving signals from the western hemisphere and one receiving signals from the eastern hemisphere. A cable connects the two stations so that signals sent out from one half of the world can be transmitted to the other half. This cable is analogous to the brain's
- A. corpus callosum.
 - B. cerebral cortex.
 - C. white matter.
 - D. medulla oblongata.
52. The two halves of the brain, which rely on the corpus callosum for communication, are called
- A. cerebral hemispheres.
 - B. lobes.
 - C. contralateral.
 - D. split brain.
53. Marc Dax noticed a relationship between the loss of speech and the side of the brain in which damage had occurred in patients suffering from
- A. prosopagnosia.
 - B. aphasia.
 - C. ablation.
 - D. schizophrenia.

54. Paul Broca believed that
- A. localization of function does not exist.
 - B. the left hemisphere of the brain is critical to normal speech function.
 - C. the right hemisphere of the brain is critical to normal speech function.
 - D. neither hemisphere of the brain is critical to normal speech function.
55. Karl Lashley concluded that localization of specific memories
- A. can be demonstrated through the use of a large variety of techniques.
 - B. can be demonstrated only by using incision.
 - C. can be demonstrated only by using ablation.
 - D. cannot be demonstrated.
56. This particular part of the left hemisphere of the brain appears to contribute to language comprehension.
- A. Dax's area
 - B. Wernicke's area
 - C. Lashley's area
 - D. Boca's area
57. Split-brain patients sometimes have difficulty reconciling information that is ____ (largely localized in the left hemisphere) with information that is ____ (generally localized in the right hemisphere).
- A. verbal; spatial
 - B. spatial; verbal
 - C. visual; auditory
 - D. tactile; olfactory
58. Juan suffers from a disorder of skilled movements, which is known as
- A. dyslexia.
 - B. aphasia.
 - C. apraxia.
 - D. agnosia.
59. What percentage of the population has language functions predominantly localized in the left hemisphere of the brain?
- A. 100
 - B. 90
 - C. 50
 - D. 20

60. The frontal lobe is responsible for
- A. sensing pain and pressure.
 - B. visual processing.
 - C. auditory processing.
 - D. higher thought processes and motor processing.
61. Which of the following would most involve the use of the frontal lobe?
- A. Tia sees her finger in a nutcracker.
 - B. Tia feels incredible pain when she gets her finger caught in a nutcracker.
 - C. Tia hears a nutcracker closing.
 - D. Tia considers how to use an oddly designed nutcracker to crack a nut.
62. This particular way of looking at the brain divides up the cerebral hemisphere into four parts called
- A. lobes.
 - B. hemispheric specialization.
 - C. in vivo technique.
 - D. split brain.
63. The frontal association area of the ____ lobe is crucial to problem solving, planning, and judgment.
- A. frontal
 - B. parietal
 - C. temporal
 - D. occipital
64. The parietal lobe is primarily responsible for
- A. planning and execution of movement.
 - B. somatosensory processing.
 - C. auditory processing.
 - D. visual processing.
65. The main functions of the temporal and occipital lobes, respectively, are
- A. visual processing and auditory processing.
 - B. execution of movement and sensing texture.
 - C. auditory processing and visual processing.
 - D. somatosensory processing and visual processing.
66. Tom puts his hand on a warm stove burner and senses the heat coming from the stove. The message of warmth travels from his hand to which lobe of the brain?
- A. occipital
 - B. parietal
 - C. temporal
 - D. frontal

67. Wilma wakes up in the middle of the night to hear a loud thump coming from the stairway. She then hears creaking and a voice whispering. Her _____ lobe makes it possible for her to hear that there are burglars in her house.
- A. occipital
 - B. parietal
 - C. temporal
 - D. frontal
68. Joe is walking around a room completely in the dark. He cannot see anything. When he feels the doorknob with his hand, he pulls the door open. What location in the brain most directly enabled him to accomplish what he attempted?
- A. the temporal lobe
 - B. the occipital lobe
 - C. the parietal lobe
 - D. the cerebral fissures
69. This part of the brain, located in the frontal lobe, is important for controlling movement. It is responsible for planning and executing movement especially for movements including a delayed response.
- A. primary visual cortex
 - B. the cerebral fissures
 - C. primary auditory cortex
 - D. primary motor cortex
70. The parietal lobe contains the _____, which is the part of the brain that the various senses provide information to concerning "pressure, texture, temperature, and pain."
- A. association areas
 - B. primary motor cortex
 - C. primary somatosensory cortex
 - D. primary visual cortex
71. Although the brain makes up only one fortieth of the total weight of the adult human body, it uses _____ of the circulating blood, available oxygen, and available glucose.
- A. one thirtieth
 - B. one twentieth
 - C. one tenth
 - D. one fifth
72. For convenience and localizing different cortical functions, _____ is the division of the cerebral cortex into different modules.
- A. Cortical Spatial Map (CSM)
 - B. Cerebral Localization Map (CLM)
 - C. Brodmann areas
 - D. Broca's areas

73. This type of disorder is caused by an interruption in the flow of blood to the brain and often contributes to noticeable loss in cognitive functioning.
- A. vascular disorder
 - B. aphasic stroke
 - C. dratonin
 - D. neoplasms
74. Cognitive function can be affected by brain tumors which can occur in either the gray or white matter of the brain. Another name for a brain tumor is
- A. septum.
 - B. neoplasm.
 - C. pons.
 - D. apraxia.
75. This type of stroke is due to a fatty tissue that has built up over years and then breaks free and then becomes lodged in an artery in the brain.
- A. neoplasms
 - B. hemorrhagic stroke
 - C. aphasic stroke
 - D. ischemic stroke
76. This type of stroke is due to a blood vessel in the brain suddenly breaking and filling the surrounding tissue with blood which contributes to cells dying.
- A. ischemic stroke
 - B. neoplasms
 - C. hemorrhagic stroke
 - D. aphasic stroke
77. List the three main regions of the brain. Next, under each heading, list the significant structures located in each region, and give a short description of the functions of each structure.

78. Explain the concept of hemispheric specialization. Include in your discussion a description of the abilities of each hemisphere and the role of the corpus callosum.

79. Explain the importance of the various chemical substances involved in neurotransmission.

80. List and describe the function of the various neuronal structures.

84. An epileptic patient has had her corpus callosum severed. The patient has been asked to draw a three-dimensional form with her left hand. The patient is successful. However, when asked to draw the same object with the right hand, the patient was not able to perform the task successfully. Why not?
85. Explain the similarities and differences between the various types of metabolic imaging techniques. Include in your explanation when you might use one over another.
86. You have just stepped on a nail protruding from the floor. Describe the various processes involved in relaying information from the time you step on the nail to the time you pull your foot away. Be sure to include effectors and receptors in your discussion.

87. Each of the four lobes of the brain is responsible for the processing of different information. Give an example of a task or activity that would require the use of at least three of the lobes. In describing the task, make sure you show how each of the lobes is involved.
88. Imagine that you were a doctor in "the old days" (prior to the invention of the various *in vivo* techniques). First, list a number of cognitive problems that you could study (e.g., Korsakoff's syndrome, aphasia, apraxia, case studies like Phineas Gage), then describe how you would use postmortem studies in understanding these various cognitive problems. Include in your discussion the various behaviors of interest. Also, from a scientific standpoint how would you increase the confidence of your findings?
89. Imagine that the brain had no hemispheric specialization and no modularity. What would be the implications for such a brain (include issues such as learning, brain damage, brain development, etc.)?

90. Explain how the brain might work if all neurotransmitters were nonexistent and it was based simply on which neurons were firing. What would be the implications for a brain that functioned so?
91. Generate various scenarios in which an individual has a head injury from say a car accident (include injuries from front, back, top, and the sides). Include both closed and open-head injuries and describe how the injuries would alter function.
92. As part of a research project for a biological psychology class, you are assigned to work with experienced researchers who have access to equipment that allows you to study the human brain. Describe two *in vivo* techniques and how they would allow you to learn about the human brain.

93. How can the study of the brain have applications for improving human welfare?

94. What parts of the brain are used while playing football, and how are they used?

95. From both a research and medical diagnostic viewpoint, explain the significance of Brodmann areas.

96. You are a biological psychologist and you must figure out what symptoms or effects certain diseases have on each of your participants. One participant has Korsakoffs syndrome, one is a split-brain patient, and the third has had an ischemic stroke. Briefly explain the effects or accompanying symptoms of each of these people.

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 - D. Mike sees a photo of a man pointing a knife at a woman.

30. Which of the following would involve activity in the amygdala?
- A. Wilma sees a large dog.
 - B. Wilma remembered seeing a large dog on the street.
 - C.** Wilma gets angry at a dog after it ate her purse.
 - D. Wilma leans over to pet a large dog.
31. The ____ is responsible for the formation of new memories.
- A. thalamus
 - B.** hippocampus
 - C. hypothalamus
 - D. aphasia
32. Damage to the hippocampus can result in "loss of memory function" in which old information is still able to be recalled, but the individual is unable to form new memories. This is know as
- A. Benzine syndrome.
 - B. apraxia.
 - C. aphasia.
 - D.** Korsakoff's syndrome.
33. Disruption in the hippocampus does *not* seem to result in deficits of what kind of memory?
- A. Declarative memory
 - B. Short-term memory
 - C.** Procedural memory
 - D. Long-term memory
34. Wilma has damage to a certain area of her brain. She can remember people and events from long ago, but she cannot remember where she ate lunch today. Judging by her symptoms, Wilma probably has damage to the
- A. hypothalamus.
 - B.** hippocampus.
 - C. thalamus.
 - D. corpus callosum.
35. This particular part of the brain is responsible for regulating behavior that is important for the survival of the organism (e.g., fighting, feeding, fleeing, and mating) and "regulating emotions and reactions to stress."
- A.** hypothalamus
 - B. thalamus
 - C. pons
 - D. limbic system

36. Dysfunction in the thalamus can lead to a variety of results, including
- A. hypersexuality.
 - B. depression.
 - C. anxiety.
 - D.** amnesia.
37. Although the midbrain is not as important in mammals as in nonmammals, it is significant in that it houses the reticular activating system, which is essential in regulating
- A.** consciousness, heartbeat, and breathing.
 - B. bodily coordination, balance, and muscle tone.
 - C. breathing, swallowing, and digestion.
 - D. the signals passing from one part of the brain to another.
38. Physicians make a determination of brain death based on the degree of function of the
- A. midbrain.
 - B.** brain stem.
 - C. medulla oblongata.
 - D. cerebellum.
39. The _____, located in the hindbrain, is responsible for controlling the heartbeat, and to some extent, breathing, swallowing, and digestion.
- A. pons
 - B. cerebellum
 - C. cerebral cortex
 - D.** medulla oblongata
40. This particular part of the hindbrain "contains neural fibers that pass signals from one part of the brain to another" and thus serves as a relay station.
- A. Medulla Oblongata
 - B.** Pons
 - C. Cerebellum
 - D. Limbic System
41. This part of the hindbrain is responsible for "coordination, balance, and muscle tone," and also includes memory related to procedural movements.
- A. Hypothalamus
 - B. Amygdala
 - C. Septum
 - D.** Cerebellum

42. A code blue has just been announced in a hospital. A patient has stopped breathing. Doctors and medics are rushed to the scene and quickly determine that brain death has not yet occurred. How did the medics know whether the patient was brain dead or not?
- A. They found that there was still activity in the frontal lobe of the patient's brain.
 - B. Once breathing stops, brain death occurs.
 - C.** They found that there was still activity in the brain stem.
 - D. They found that the pons was still active.
43. How would someone determine whether there was a possibility of a problem in the function of a patient's medulla oblongata?
- A. The patient might be experiencing both short-term and long-term memory loss.
 - B. The patient might not be able to sense pain or pressure.
 - C. The patient might display irregular aggression patterns.
 - D.** The patient might experience heartbeat irregularity and possible breathing problems.
44. Sonia lays in a hospital bed unable to wakeup. Scans of her brain show damage to the ____ which is important for regulating overall level of consciousness/arousal.
- A. corpus callosum
 - B. white matter
 - C.** reticular activating system
 - D. medulla oblongata
45. The convolutions of the cerebral cortex comprise ____, which are small grooves; ____, which are raised areas or bulges; and ____, which are large grooves.
- A. sulci; fissures; gyri
 - B. fissures; sulci; gyri
 - C. gyri; fissures; sulci
 - D.** sulci; gyri; fissures
46. The cerebral cortex is
- A. the main lobe of the forebrain.
 - B. the bridge between the left and the right hemispheres of the brain.
 - C.** a one- to three-millimeter-thick layer that covers the surface of the brain.
 - D. a layer, covering the surface of the brain, that comprises about 60% of the brain.
47. The cerebral cortex is often referred to as ____, whereas the nerve fibers of the brain's interior are often called ____.
- A. contralateral; ipsilateral
 - B.** gray matter; white matter
 - C. ipsilateral; contralateral
 - D. white matter; gray matter

48. _____ refers to transmission of information to the opposite side, whereas _____ refers to transmission to the same side.
- A. Contralateral; ipsilateral
 - B. Occipital; frontal
 - C. Ipsilateral; contralateral
 - D. Parietal; temporal
49. Most motor information transmission is
- A. parietal.
 - B. contralateral.
 - C. ipsilateral.
 - D. occipital.
50. The corpus callosum serves to
- A. make certain contralateral transmissions ipsilateral.
 - B. regulate the transmission of information along the cerebral cortex.
 - C. allow transmission of information between the left and right hemispheres.
 - D. transmit information from the left and right hemispheres to the spinal cord.
51. There are two radio stations, one receiving signals from the western hemisphere and one receiving signals from the eastern hemisphere. A cable connects the two stations so that signals sent out from one half of the world can be transmitted to the other half. This cable is analogous to the brain's
- A. corpus callosum.
 - B. cerebral cortex.
 - C. white matter.
 - D. medulla oblongata.
52. The two halves of the brain, which rely on the corpus callosum for communication, are called
- A. cerebral hemispheres.
 - B. lobes.
 - C. contralateral.
 - D. split brain.
53. Marc Dax noticed a relationship between the loss of speech and the side of the brain in which damage had occurred in patients suffering from
- A. prosopagnosia.
 - B. aphasia.
 - C. ablation.
 - D. schizophrenia.

54. Paul Broca believed that
- A. localization of function does not exist.
 - B.** the left hemisphere of the brain is critical to normal speech function.
 - C. the right hemisphere of the brain is critical to normal speech function.
 - D. neither hemisphere of the brain is critical to normal speech function.
55. Karl Lashley concluded that localization of specific memories
- A. can be demonstrated through the use of a large variety of techniques.
 - B. can be demonstrated only by using incision.
 - C. can be demonstrated only by using ablation.
 - D.** cannot be demonstrated.
56. This particular part of the left hemisphere of the brain appears to contribute to language comprehension.
- A. Dax's area
 - B.** Wernicke's area
 - C. Lashley's area
 - D. Boca's area
57. Split-brain patients sometimes have difficulty reconciling information that is ____ (largely localized in the left hemisphere) with information that is ____ (generally localized in the right hemisphere).
- A.** verbal; spatial
 - B. spatial; verbal
 - C. visual; auditory
 - D. tactile; olfactory
58. Juan suffers from a disorder of skilled movements, which is known as
- A. dyslexia.
 - B. aphasia.
 - C.** apraxia.
 - D. agnosia.
59. What percentage of the population has language functions predominantly localized in the left hemisphere of the brain?
- A. 100
 - B.** 90
 - C. 50
 - D. 20

60. The frontal lobe is responsible for
- A. sensing pain and pressure.
 - B. visual processing.
 - C. auditory processing.
 - D.** higher thought processes and motor processing.
61. Which of the following would most involve the use of the frontal lobe?
- A. Tia sees her finger in a nutcracker.
 - B. Tia feels incredible pain when she gets her finger caught in a nutcracker.
 - C. Tia hears a nutcracker closing.
 - D.** Tia considers how to use an oddly designed nutcracker to crack a nut.
62. This particular way of looking at the brain divides up the cerebral hemisphere into four parts called
- A.** lobes.
 - B. hemispheric specialization.
 - C. in vivo technique.
 - D. split brain.
63. The frontal association area of the ____ lobe is crucial to problem solving, planning, and judgment.
- A.** frontal
 - B. parietal
 - C. temporal
 - D. occipital
64. The parietal lobe is primarily responsible for
- A. planning and execution of movement.
 - B.** somatosensory processing.
 - C. auditory processing.
 - D. visual processing.
65. The main functions of the temporal and occipital lobes, respectively, are
- A. visual processing and auditory processing.
 - B. execution of movement and sensing texture.
 - C.** auditory processing and visual processing.
 - D. somatosensory processing and visual processing.
66. Tom puts his hand on a warm stove burner and senses the heat coming from the stove. The message of warmth travels from his hand to which lobe of the brain?
- A. occipital
 - B.** parietal
 - C. temporal
 - D. frontal

67. Wilma wakes up in the middle of the night to hear a loud thump coming from the stairway. She then hears creaking and a voice whispering. Her ____ lobe makes it possible for her to hear that there are burglars in her house.
- A. occipital
 - B. parietal
 - C. temporal**
 - D. frontal
68. Joe is walking around a room completely in the dark. He cannot see anything. When he feels the doorknob with his hand, he pulls the door open. What location in the brain most directly enabled him to accomplish what he attempted?
- A. the temporal lobe
 - B. the occipital lobe
 - C. the parietal lobe**
 - D. the cerebral fissures
69. This part of the brain, located in the frontal lobe, is important for controlling movement. It is responsible for planning and executing movement especially for movements including a delayed response.
- A. primary visual cortex
 - B. the cerebral fissures
 - C. primary auditory cortex
 - D. primary motor cortex**
70. The parietal lobe contains the ____, which is the part of the brain that the various senses provide information to concerning "pressure, texture, temperature, and pain."
- A. association areas
 - B. primary motor cortex
 - C. primary somatosensory cortex**
 - D. primary visual cortex
71. Although the brain makes up only one fortieth of the total weight of the adult human body, it uses ____ of the circulating blood, available oxygen, and available glucose.
- A. one thirtieth
 - B. one twentieth
 - C. one tenth
 - D. one fifth**

72. For convenience and localizing different cortical functions, _____ is the division of the cerebral cortex into different modules.
- A. Cortical Spatial Map (CSM)
 - B. Cerebral Localization Map (CLM)
 - C. Brodmann areas**
 - D. Broca's areas
73. This type of disorder is caused by an interruption in the flow of blood to the brain and often contributes to noticeable loss in cognitive functioning.
- A. vascular disorder**
 - B. aphasic stroke
 - C. dratonin
 - D. neoplasms
74. Cognitive function can be affected by brain tumors which can occur in either the gray or white matter of the brain. Another name for a brain tumor is
- A. septum.
 - B. neoplasm.**
 - C. pons.
 - D. apraxia.
75. This type of stroke is due to a fatty tissue that has built up over years and then breaks free and then becomes lodged in an artery in the brain.
- A. neoplasms
 - B. hemorrhagic stroke
 - C. aphasic stroke
 - D. ischemic stroke**
76. This type of stroke is due to a blood vessel in the brain suddenly breaking and filling the surrounding tissue with blood which contributes to cells dying.
- A. ischemic stroke
 - B. neoplasms
 - C. hemorrhagic stroke**
 - D. aphasic stroke
77. List the three main regions of the brain. Next, under each heading, list the significant structures located in each region, and give a short description of the functions of each structure.

Answer not provided.

78. Explain the concept of hemispheric specialization. Include in your discussion a description of the abilities of each hemisphere and the role of the corpus callosum.

Answer not provided.

79. Explain the importance of the various chemical substances involved in neurotransmission.

Answer not provided.

80. List and describe the function of the various neuronal structures.

Answer not provided.

81. Describe the different types of strokes and the impact they have on the brain.

Answer not provided.

82. How can researchers trace observed behavior resulting from brain damage to a certain location in the brain once a patient has died? Contrast this method with other methods used while the patient is alive.

Answer not provided.

83. Suppose that a large, parasitic microorganism entered the human blood stream and traveled up to the brain, but was blocked from entering. Why did the microorganism not pass into the brain? What structure blocked its entry? Compare this structure with the structure that links both brain hemispheres.

Answer not provided.

84. An epileptic patient has had her corpus callosum severed. The patient has been asked to draw a three-dimensional form with her left hand. The patient is successful. However, when asked to draw the same object with the right hand, the patient was not able to perform the task successfully. Why not?

Answer not provided.

85. Explain the similarities and differences between the various types of metabolic imaging techniques. Include in your explanation when you might use one over another.

Answer not provided.

86. You have just stepped on a nail protruding from the floor. Describe the various processes involved in relaying information from the time you step on the nail to the time you pull your foot away. Be sure to include effectors and receptors in your discussion.

Answer not provided.

87. Each of the four lobes of the brain is responsible for the processing of different information. Give an example of a task or activity that would require the use of at least three of the lobes. In describing the task, make sure you show how each of the lobes is involved.

Answer not provided.

88. Imagine that you were a doctor in "the old days" (prior to the invention of the various *in vivo* techniques). First, list a number of cognitive problems that you could study (e.g., Korsakoff's syndrome, aphasia, apraxia, case studies like Phineas Gage), then describe how you would use postmortem studies in understanding these various cognitive problems. Include in your discussion the various behaviors of interest. Also, from a scientific standpoint how would you increase the confidence of your findings?

Answer not provided.

89. Imagine that the brain had no hemispheric specialization and no modularity. What would be the implications for such a brain (include issues such as learning, brain damage, brain development, etc.)?

Answer not provided.

90. Explain how the brain might work if all neurotransmitters were nonexistent and it was based simply on which neurons were firing. What would be the implications for a brain that functioned so?

Answer not provided.

91. Generate various scenarios in which an individual has a head injury from say a car accident (include injuries from front, back, top, and the sides). Include both closed and open-head injuries and describe how the injuries would alter function.

Answer not provided.

92. As part of a research project for a biological psychology class, you are assigned to work with experienced researchers who have access to equipment that allows you to study the human brain. Describe two *in vivo* techniques and how they would allow you to learn about the human brain.

Answer not provided.

93. How can the study of the brain have applications for improving human welfare?

Answer not provided.

94. What parts of the brain are used while playing football, and how are they used?

Answer not provided.

95. From both a research and medical diagnostic viewpoint, explain the significance of Brodmann areas.

Answer not provided.

96. You are a biological psychologist and you must figure out what symptoms or effects certain diseases have on each of your participants. One participant has Korsakoffs syndrome, one is a split-brain patient, and the third has had an ischemic stroke. Briefly explain the effects or accompanying symptoms of each of these people.

Answer not provided.