Psychology/ Module 5 Practice

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. After the accident to his frontal lobe, Phineas Gage became:
   a. unreliable, irritable, and unable to control his impulses.
   b. depressed and less able to speak and express himself.
   c. blind in his left eye and deaf in his right ear.
   d. the first doctor to study serious brain injuries.

2. The major limitation of the case study method of studying the brain is that:
   a. they provide only general and less detailed information about brain function.
   b. case studies are difficult to perform without expensive brain scanning equipment.
   c. studies of cases are expensive because so many participants are required.
   d. it is difficult to generalize the results to other cases.

3. A study in which one person is studied in depth, such as a person who suffers a rare brain injury like Phineas Gage, is called a:
   a. lobotomy.
   b. case study.
   c. injury study.
   d. correlation.

4. Psychologists are interested in the case of Phineas Gage because:
   a. doctors at the time carefully researched which part of his brain was destroyed and how his personality changed.
   b. he was the first patient to go through a frontal lobotomy and he suffered severe motor movement problems.
   c. Gage was born without a corpus callosum, and psychologists were able to track how his hemispheres developed as he aged.
   d. Gage was the brain surgeon who perfected the first brain scans.

5. Which of the following scans provide detailed information about the structure and tissues of the brain?
   a. PET and EEG
   b. case studies and causational analysis
   c. MRI and CAT
   d. Gage scans and cortical scans

6. Which of the following brain scans is a series of x-rays combined into computerized pictures of the brain?
   a. PET
   b. EEG
   c. CAT
   d. MRI

7. Which of the following brain scans involves magnetic fields and radio waves that provide information about different structures in the brain?
   a. PET
   b. EEG
   c. CAT
   d. MRI
8. Which of the following brain scans is a visual display of activity in the brain, measuring glucose use by brain structures?
   a. PET
   b. EEG
   c. CAT
   d. MRI

9. The technique that uses magnetic fields and radio waves to produce computer images of structures within the brain is called:
   a. a CT scan.
   b. a PET scan.
   c. MRI.
   d. the EEG.

10. The brain research technique that involves monitoring the brain's usage of glucose is called (in abbreviated form) the:
    a. CT scan.
    b. EEG.
    c. MRI.
    d. PET scan.

11. Which of the following tasks would have been difficult for Phineas Gage after the explosion injured his brain?
    a. solving simple math problems without a calculator
    b. controlling his anger after a disappointment
    c. running 50 yards in a straight line
    d. singing the national anthem

12. Which of the following statements best describes how researchers use case studies of accidental brain injuries (like the Phineas Gage case) to study the brain?
    a. Researchers use brain surgeries such as lobotomies to temporarily disable certain parts of the brain and observe the effects.
    b. Researchers scan patients' brains using MRI and CAT scans and closely examine the tissues of the brain.
    c. Researchers inject a radioactive form of glucose into patients' bloodstreams and use a PET scan to examine brain activity.
    d. Researchers determine which part of the brain was injured and observe the patient's changes in behavior.

13. Doctors investigating whether a person has a tumor in his or her brain might use which MSC of brain scan?
    a. EEG
    b. PET
    c. MRI
    d. EKG

14. After a shooting accident, a doctor might use a(n) _______ scan to determine if the bullet damaged tissues of the brain.
    a. MAP
    b. CAT
    c. PET
    d. EEG
15. Which of the following would a doctor recommend for a patient who needs a brain scan that shows internal structure of the brain, but who cannot be exposed to x-rays because of a cancer risk?
   a. PET
   b. CAT
   c. MRI
   d. EEG

16. Which brain scan would a researcher use to discover which parts of the brain are active during a schizophrenic's visual hallucinations?
   a. PET
   b. CAT
   c. MRI
   d. EKG

17. A researcher studying sleep disorders and how brain waves change during sleep cycles would most likely use the ______ scan.
   a. PET
   b. CAT
   c. MRI
   d. EEG

18. A researcher studying brain activity might be most likely to use the ______ scan first, since it is the least intrusive scan that provides information about brain activity.
   a. EEG
   b. MRI
   c. fMRI
   d. PET

19. To identify which of Lucy's brain areas was most active when she talked, neuroscientists gave her a temporarily radioactive form of glucose and a(n):
   a. CT scan.
   b. EEG.
   c. MRI.
   d. PET scan.

20. Which of the following brain scans would be most useful for exploring hemispheric differences?
   a. CAT, MRI
   b. CAT, PET
   c. MRI, fMRI
   d. PET, fMRI

21. The oldest part and central core of the brain is the:
   a. brainstem.
   b. medulla.
   c. thalamus.
   d. cerebellum.

22. The medulla controls:
   a. the brain's sensory switchboard.
   b. emotions, hearing, and touch sensations.
   c. heartbeat, breathing, and circulation.
   d. hunger and thirst.
23. Which part of the brain controls the most basic life support functions?
   a. brainstem
   b. medulla
   c. thalamus
   d. cerebellum

24. Which part of the brain is most responsible for wakefulness and arousal?
   a. limbic system
   b. brainstem
   c. hippocampus
   d. reticular formation

25. The reticular formation is located in the:
   a. brainstem.
   b. limbic system.
   c. motor cortex.
   d. somatosensory cortex.

26. The part of the brainstem that controls heartbeat and breathing is called the:
   a. cerebellum.
   b. medulla.
   c. reticular formation.
   d. thalamus.

27. All of the incoming sensations from our senses (except smell) go through which brain structure first before being distributed to the rest of the brain?
   a. hippocampus
   b. reticular formation
   c. medulla
   d. thalamus

28. Which brain structure receives information from all the senses except smell?
   a. amygdala
   b. medulla
   c. hippocampus
   d. thalamus

29. The primary function of the amygdala is to control:
   a. breathing.
   b. memory.
   c. emotions.
   d. hunger.

30. Which component of the limbic system plays an essential role in the formation of new memories?
   a. amygdala
   b. hippocampus
   c. hypothalamus
   d. thalamus

31. Someone who is being kept alive with life-support machines that control heartbeat and breathing may have damage to which part of the brain?
   a. amygdala
   b. cerebral cortex
   c. medulla
   d. hippocampus
32. Narcolepsy, a disorder that involves uncontrollable periods of sleep onset, may be related to which of the following brain structures?
   a. hippocampus
   b. reticular formation
   c. medulla
   d. thalamus

33. Phineas Gage, a famous historical case which demonstrates the effects of brain damage, had trouble controlling his emotional responses after his accident. Which of the following brain structures was most likely damaged during the accident?
   a. brainstem
   b. thalamus
   c. hypothalamus
   d. amygdala

34. Imagine you get a paper cut on your right index finger. Which of the following is an accurate list of the brain structures this impulse would pass through, in order?
   a. adrenals, brainstem, somatosensory cortex, endocrine system
   b. corpus callosum, brainstem, hypothalamus, motor cortex
   c. somatosensory cortex, thalamus, brainstem, spinal cord
   d. spinal cord, brainstem, thalamus, somatosensory cortex

35. Which brain structure relays information from the eyes to the visual cortex?
   a. amygdala
   b. cerebellum
   c. hippocampus
   d. thalamus

36. After Greg's serious motorcycle accident, doctors detected damage to his cerebellum. Greg is most likely to have difficulty:
   a. experiencing intense emotions.
   b. playing his guitar.
   c. reading a book.
   d. understanding what others are saying.

37. If a patient's hippocampus is damaged by a stroke, the patient may have difficulty:
   a. seeing out of the right side of each eye.
   b. remembering recent events.
   c. controlling emotional responses.
   d. staying awake.

38. In terms of brain evolution, the sequence of brain regions from oldest to newest is:
   a. brainstem; limbic system; cerebral cortex.
   b. cerebral cortex; brainstem; limbic system.
   c. limbic system; brainstem; cerebral cortex.
   d. limbic system; cerebral cortex; brainstem.

39. A brain tumor caused extensive damage to Mr. Thorndike's hypothalamus. It is most likely that he may suffer a loss of:
   a. language comprehension.
   b. muscular coordination.
   c. sexual motivation.
   d. visual perception.
40. To demonstrate that brain stimulation can make a rat violently aggressive, Professor Brown should electrically stimulate the rat's:
   a. amygdala.
   b. cerebellum.
   c. medulla.
   d. reticular formation.

41. The wrinkled outer surface of the brain covering the lower level structures is called the:
   a. cerebellum.
   b. cerebral cortex.
   c. amygdala.
   d. corpus callosum.

42. The crevice that divides the left and right hemisphere is called the:
   a. corpus callosum.
   b. central crevice.
   c. brainstem.
   d. longitudinal fissure.

43. Which of the following brain structures connects the right and left hemisphere?
   a. cerebellum
   b. cerebral cortex
   c. amygdala
   d. corpus callosum

44. The corpus callosum is a band of neural fibers that:
   a. controls the glands and muscles of the internal organs.
   b. directs the muscle movements involved in speech.
   c. enables the left hemisphere to control the right side of the body.
   d. transmits information between the cerebral hemispheres.

45. Which lobe of the cerebral cortex is most responsible for advanced critical thinking, such as judgment and planning tasks?
   a. parietal
   b. temporal
   c. frontal
   d. occipital

46. Which of the following is the most correct list of the parts of the cerebral cortex?
   a. longitudinal fissure, brainstem, cranial nerves, limbic system
   b. frontal, parietal, temporal and occipital lobes
   c. left hemisphere, right hemisphere, longitudinal fissure, corpus callosum
   d. thalamus, hippocampus, hypothalamus, amygdala

47. Auditory stimulation is first processed in the _______ lobes.
   a. frontal
   b. occipital
   c. parietal
   d. temporal

48. The motor cortex is located in the _______ lobes.
   a. frontal
   b. parietal
   c. occipital
   d. temporal
49. The somatosensory cortex is most critical for our sense of:
   a. hearing.
   b. sight.
   c. taste.
   d. touch.

50. The part of the left frontal lobe that directs the muscle movements involved in speech is known as:
   a. Broca's area.
   b. the amygdala.
   c. the reticular formation.
   d. Wernicke's area.

51. A brain surgeon who wanted to make sure that neurons in the left hemisphere of the cerebral cortex could not communicate with neurons in the right hemisphere would have to sever which of the following brain structures?
   a. cerebellum
   b. cerebral cortex
   c. amygdala
   d. corpus callosum

52. The eyes communicate most directly with which lobe of the cerebral cortex?
   a. parietal
   b. temporal
   c. frontal
   d. occipital

53. Which part of the brain might be most active in a person planning an opening strategy in a chess game?
   a. frontal lobe
   b. longitudinal fissure
   c. brainstem
   d. hippocampus

54. What is the most visible difference between the lower level brain structures and the parts of the cerebral cortex?
   a. The lower level brain structures consist of neurons, and the cerebral cortex structures consist of endocrine materials.
   b. The cerebral cortex lobes look similar and differ by location, but the lower level structures are shaped differently.
   c. The lower level brain structures are divided into two hemispheres, but the cerebral cortex is not.
   d. The cerebral cortex neurons differ in their anatomy and function from the lower level brain neurons.

55. The surgical removal of a large tumor from Allen's occipital lobe resulted in extensive loss of brain tissue. Allen is most likely to suffer some loss of:
   a. language comprehension.
   b. muscular coordination.
   c. speaking ability.
   d. vision.
56. Which of the following body parts probably has the most brain tissue allocated to it on the somatosensory cortex?
   a. elbow
   b. knee
   c. lips
   d. shoulder

57. Which lobe of the brain receives the input that enables you to feel someone scratching your back?
   a. frontal
   b. occipital
   c. parietal
   d. temporal

58. The long crack in the cerebral cortex between the right and left hemisphere is called the:
   a. hypothalamus
   b. longitudinal fissure
   c. medulla
   d. reticular formation

59. The current popular idea that some people are right-brained and some are left-brained:
   a. has no basis in real psychology research
   b. is an exaggeration of research on hemispheric differences
   c. is completely accurate according to psychological research
   d. makes no sense because the brain is one thing, not divided into two left and right parts

60. Which two areas (usually located on the left hemisphere) are responsible for speech and understanding speech?
   a. thalamus and hypothalamus
   b. Broca's area and Wernicke's area
   c. motor cortex and somatosensory cortex
   d. vocalization area and comprehension area

61. Broca's area is responsible for:
   a. muscle movements involved in speech
   b. communications between the right and left hemisphere
   c. understanding what someone else says
   d. spatial reasoning tasks

62. Wernicke's area is responsible for:
   a. spatial reasoning tasks
   b. muscle movements involved in speech
   c. understanding what someone else says
   d. communications between the right and left hemisphere

63. The text lists which of the following as one of the differences between the left and right hemisphere?
   a. Only the left hemisphere is able to think about abstract reasoning tasks, like logic problems.
   b. The right hemisphere finds connections between words.
   c. Language is processed primarily by the right hemisphere.
   d. The left hemisphere contains the frontal and parietal lobes, and the right hemisphere contains the temporal and occipital lobes.
64. The two language regions in the left hemisphere are called:
   a. Broca's and Wernicke's areas.
   b. Gazzaniga's and Sperry's areas.
   c. the hippocampus and the amygdala.
   d. the medulla and the thalamus.

65. The split-brain operation described in the text (in which the corpus callosum is severed) was developed to treat:
   a. schizophrenia.
   b. depression.
   c. insomnia.
   d. epilepsy.

66. Which of the following brain structures is most affected by the split-brain operation developed by Sperry and Gazzaniga?
   a. left frontal lobe
   b. Broca's area
   c. hypothalamus
   d. corpus callosum

67. The split-brain patients studied by Gazzaniga and Sperry were unable to identify the names of objects:
   a. projected in their left visual field.
   b. projected in their right visual field.
   c. described to them verbally.
   d. described to them in writing.

68. Most tasks we perform use:
   a. primarily the left brain, unless the task is difficult enough to require both hemispheres.
   b. the right hemisphere in our conscious mind, and our left hemisphere in the unconscious mind.
   c. both the right and left hemispheres of the cerebral cortex.
   d. either the left or right hemisphere, depending on the task.

69. Which of the following statements is the most correct summary of the functions of the left and right hemisphere?
   a. The right hemisphere is more creative, and the left hemisphere is more logical.
   b. The right hemisphere controls motor coordination functions, and the left hemisphere controls abstract reasoning.
   c. The right and left hemispheres generally perform similar functions and communicate directly.
   d. The right hemisphere controls tasks on the right side of the body, and the left hemisphere controls tasks on the left side.

70. One of the clearest differences between the functions of the left and right hemispheres involves:
   a. computer use.
   b. judgment.
   c. spoken language.
   d. moral reasoning.

71. A patient who experienced a stroke that damaged Broca's area of the brain would have difficulty:
   a. speaking.
   b. listening.
   c. understanding.
   d. moving.
___ 72. A patient who experienced a stroke that damaged Wernicke's area of the brain would have difficulty:
   a. speaking to a person across the room.
   b. following the movement of a dot across a screen.
   c. understanding what someone else says.
   d. typing a complete sentence without spelling mistakes.

___ 73. Which of the following brain areas are found only in the left hemisphere in most people?
   a. hypothalamus and hippocampus
   b. corpus callosum and corpus callosum
   c. axon terminals and myelin sheath
   d. Broca's area and Wernicke's area

___ 74. A patient with damage to Broca's area of the brain would probably have difficulty:
   a. expressing thoughts in spoken language.
   b. expressing thoughts in written language.
   c. recognizing a family member's face.
   d. understanding what someone else says.

___ 75. A patient with damage to Wernicke's area of the brain would probably have difficulty:
   a. expressing thoughts in spoken language.
   b. expressing thoughts in written language.
   c. recognizing a family member's face.
   d. understanding what someone else says.

___ 76. The primary purpose and effect of the split-brain operations performed by Gazzaniga and Sperry was to:
   a. enhance the logical reasoning abilities of the left frontal lobe.
   b. speed up the process of neural transmissions between the brainstem and cerebral cortex.
   c. increase the quality of communications between the left and right hemispheres.
   d. prevent neural messages from traveling between the left and right hemispheres.

___ 77. If a picture of a comb is processed in the right hemisphere of a female split-brain patient, she should be able to:
   a. speak about what she saw.
   b. use her left hand to draw a picture of the comb.
   c. use her right hand to write the word “comb.”
   d. use her right hand to draw a picture of the comb.

___ 78. A person who suffers brain damage to the rear part of the frontal lobe in the left hemisphere might experience which of the following difficulties?
   a. blindness in the left eye
   b. difficulty in movements on the right side of the body
   c. problems with critical thinking
   d. limited hearing from the right side and seeing from the left side of the body
79. A 3-year-old patient is about to have his left hemisphere removed to prevent the spread of a brain disease. Which of the following is an accurate statement about how this child's language development might be affected?
   a. Because of brain plasticity, over time other parts of the child's brain could learn to speak and understand language.
   b. Since the left hemisphere contains both Broca's and Wernicke's areas, the child will never be able to speak again.
   c. The left hemisphere controls creativity so the patient might have difficulty drawing and fingerpainting.
   d. The right hemisphere controls language, so the child's ability to speak most likely will not be affected.

80. After Paul's serious skiing accident, doctors detected damage to his temporal lobe in Wernicke's area. Because of the damage, Paul is most likely to experience difficulty in:
   a. pronouncing words correctly.
   b. recognizing familiar faces.
   c. remembering past events.
   d. understanding what others are saying.

81. Which of the following brain scans is an amplified recording of brain waves?
   a. PET
   b. EEG
   c. CAT
   d. MRI

Essay

1. You are a neurosurgeon and one of your patients tells you he is having difficulties understanding what others say to him and moving his right arm and leg. His hearing also seems to be deteriorating. You order a brain scan and analyze the results. Explain what one brain scan you would choose to order and why, and what areas of the brain you think are most likely being affected.