Chapter 2--The Brain: An Overview of Structure and Function

Student: _____

1. Evolutionary structures within the ____ are the most primitive.

   A. hindbrain
   B. thalamus
   C. forebrain
   D. midbrain
   E. cerebral cortex

2. This structure transmits information from the spinal cord to the brain, and regulates life support functions such as respiration.

   A. hypothalamus
   B. medulla oblongata
   C. pons
   D. cerebellum
   E. hippocampus

3. Which is NOT a function of the pons?

   A. acting as a neural relay center
   B. facilitating the crossover of information between the left side of the body and the right side of the brain
   C. processing visual and auditory information
   D. regulating homeostatic behaviors
   E. balance

4. Muscle activity is coordinated in the primitive brain structure called the

   A. pons
   B. cerebellum
   C. thalamus
   D. hypothalamus
   E. medulla oblongata

5. Many of the structures of the ____ are involved in relaying information between other brain regions.

   A. midbrain
   B. forebrain
   C. hindbrain
   D. cerebral cortex
   E. none of the above

6. The thalamus, hypothalamus, and hippocampus are all structures of the

   A. hindbrain
   B. forebrain
   C. midbrain
   D. medulla
   E. spinal cord

7. The function of the thalamus is to

   A. coordinate muscle activity
   B. relay information
   C. regulate hormones
   D. regulate emotional reactions
   E. form memories

8. Which of the following controls the pituitary gland by releasing hormones?

   A. thalamus
   B. medulla
   C. hypothalamus
   D. pons
   E. none of the above

9. Which of the following is NOT regulated by the hypothalamus?

   A. memory formation
   B. temperature
   C. eating and drinking
   D. sexual behavior
   E. sleeping

10. Which of these structures is involved in the formation of long term memories?

    A. thalamus
    B. hypothalamus
    C. hippocampus
    D. pons
    E. amygdala

11. Which of these structures modulates the strength of emotional memories and is involved in emotional learning?

    A. thalamus
    B. hypothalamus
    C. hippocampus
    D. pons
    E. amygdala

12. The part of the cerebral cortex at the back of the head is called the ____ lobe.

    A. frontal
    B. parietal
    C. occipital
    D. temporal
    E. superior

13. The left and right hemispheres of the frontal, parietal and occipital lobes are connected by the

    A. medulla oblongata
    B. anterior commissure
    C. corpus callosum
    D. amygdala
    E. superior colliculi

14. A structure known as the ____ divides the frontal and parietal lobes.

    A. central sulcus
    B. anterior commissure
    C. corpus callosum
    D. lateral sulcus
    E. amygdala

15. The ____ lobes are involved in the processing of sensory information from the body, such as pain, pressure, touch, and temperature.

    A. occipital
    B. temporal
    C. frontal
    D. prefrontal
    E. anterior

16. Damage to the occipital lobe could result in difficulty processing

    A. auditory information
    B. memory
    C. sensations of pain
    D. visual information
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17. Which of the following is NOT a region of the frontal lobes?

    A. motor cortex
    B. prefrontal cortex
    C. premotor cortex
    D. postcentral gyrus
    E. none of the above

18. The ____ is involved in the planning of fine motor movements.

    A. premotor cortex
    B. motor cortex
    C. prefrontal cortex
    D. frontal cortex
    E. all of the above

19. "Executive functioning" involves which of the following?

    A. planning
    B. making decisions
    C. using working memory
    D. inhibiting inappropriate behavior
    E. all of the above

20. Who originated the idea of localization of function?

    A. Franz Gall
    B. William James
    C. Wilhelm Wundt
    D. Paul Broca
    E. Sigmund Freud

21. The idea that different mental abilities, such as reading and arithmetic, are independent functions carried out by different parts of the brain:

    A. faculty psychology
    B. Gestalt psychology
    C. functionalism
    D. structuralism
    E. phrenology

22. The major problem with phrenology was the assumption that

    A. different parts of the brain controlled different functions.
    B. the size of a portion of the brain corresponded to its relative power.
    C. different faculties were absolutely independent.
    D. both (b) and (c)
    E. all of the above

23. Disruption of language abilities is referred to as

    A. aphasia
    B. deafness
    C. prosopagnosia
    D. somatosensory deficit
    E. epilepsy

24. Injury to Broca's area results in an inability to

    A. produce language fluently
    B. understand spoken language
    C. understand written language
    D. write
    E. both (b) and (c)

25. Patients with Wernicke's aphasia are often unable to

    A. produce speech
    B. speak with fluent rhythm
    C. understand speech
    D. modulate pitch when speaking
    E. all of the above

26. The primary somatosensory cortex is organized such that

    A. each part receives information from a specific part of the body
    B. the total amount of "brain real estate" devoted to a particular body part is proportional to the size of that body part
    C. more sensitive parts of the body have correspondingly larger areas of the brain associated with them
    D. both (a) and (c) above
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27. Lashley's studies of ablation in rats suggested that maze running was related to

    A. the total amount of cortex removed
    B. the particular part of the cortex removed
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    D. both (a) and (b)
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28. Around 95% of all human beings show a specialization for language in the

    A. left hemisphere
    B. right hemisphere
    C. frontal lobe
    D. temporal lobe
    E. occipital lobe

29. Which of the following is associated primarily with the left hemisphere?

    A. working on geometric puzzles
    B. language processing
    C. musical ability
    D. navigating around familiar spaces
    E. drawing sketches

30. A technique in which a highly focused beam of X rays is passed through the body from many different angles, allowing visualization of an organ such as the brain:

    A. MRI
    B. CAT scan
    C. PET scan
    D. fMRI
    E. EEG

31. CAT scans are usually used to

    A. pinpoint areas of brain damage
    B. measure cerebral blood flow
    C. track areas of brain activity while performing a particular task
    D. detect different states of consciousness
    E. measure the electrical activity of a single brain cell

32. An advantage of MRI as compared to CAT scans:

    A. MRI provides information about neuroanatomy
    B. MRI requires no exposure to radiation
    C. MRI often permits clearer pictures
    D. MRI can be used on people who have pacemakers
    E. both b and c

33. Which of the following neuropsychological methods provide(s) information about the amount of dynamic blood flow to various regions of the brain?

    A. CAT scans
    B. MRI
    C. PET scans
    D. fMRI
    E. both c and d

34. Which of the following can detect different states of consciousness?

    A. CAT
    B. MRI
    C. EEG
    D. ERP
    E. SPECT

35. To measure an area of the brain's response to a specific event, we use

    A. CAT
    B. MRI
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36. The _____ is an area of the hindbrain that transmits information from the spinal cord to the brain.

_____

37. The _____ facilitates the crossover of information from the right side of the body and the left side of the brain, and vice versa.

_____

38. The _____ is one of the most primitive brain structures, and contains neurons that coordinate muscle activity and balance.

_____

39. The _____ contains structures that are involved in relaying information between other brain regions, and also keep us awake and alert.

_____

40. The _____ controls the pituitary gland by releasing hormones.

_____

41. The _____ controls homeostatic behaviors such as eating, drinking, sleeping, and sexual behaviors.

_____

42. Modulation of the strength of emotional memories is accomplished by the _____.

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43. The _____ lobe of the cerebral cortex is located underneath the forehead.

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44. The _____ lobes are located on the sides of the head.

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45. A structure known as the _____ divides the frontal and parietal lobes.

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46. The _____ cortex directs fine motor movement.

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47. The _____ cortex or lobe is involved in executive functioning.

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48. Franz Gall believed in _____ psychology, the idea that different mental abilities are independent and carried out in different parts of the brain.

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49. _____ is a now-discredited idea that psychological strengths and weaknesses could be precisely correlated to the relative sizes of different brain regions.

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50. Disruption of language ability is referred to as _____.

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51. Patients with _____'s aphasia can produce speech, but it often makes no sense, and they have difficulty understanding spoken language.

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52. Neuropsychologists have mapped out an area of the brain in the parietal lobe, located just behind the motor cortex, called the _____.

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53. Removal of parts of the brain is known as _____.

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54. Some brain regions can adapt to take over functions of damaged regions; this ability is known as _____ and is more prominent in younger patients.

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55. The left and right hemispheres are connected by a large neural structure known as the _____.

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56. Since the 1970s, various techniques of _____ have allowed us to construct pictures of the anatomy and functioning of intact brains.

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57. _____ is a technique for providing information about neuroanatomy without requiring exposure to radiation.

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58. A functional brain imaging technique that involves injecting a radioactively-labelled compound, allowing measurement of blood flow to different parts of the brain: _____.

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59. _____ is used to detect different states of consciousness.

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brain imaging

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MRI *or*
Magnetic resonance imaging

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PET *or*
Positron emission tomography

59. _____ is used to detect different states of consciousness.

EEG *or*
Electroencephalography

60. An electrical recording technique called _____ measures an area of the brain's response to a specific event.

ERP *or*
Event-related potential