

Chapter 2 Test

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. Damage to the medulla oblongata would most likely result in:
a. blindness.
b. amnesia.
*c. death.
d. loss of balance.
e. inability to speak.
4. 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
5. Joseph has suffered a stroke. He now experiences difficulty with balance, as well as trouble processing visual and auditory information. Which area of the brain has most likely been damaged?
*a. pons
b. thalamus
c. medulla oblongata
d. hippocampus
e. cerebellum
6. Muscle activity is coordinated in the primitive brain structure called the:
a. pons.
*b. cerebellum.
c. medulla oblongata.
d. thalamus.

e. hypothalamus.

7. After a head injury, Sarah has trouble coordinating muscle activity. Sarah most likely suffered damage to the:

- a. pons.
- b. medulla oblongata.
- *c. cerebellum.
- d. thalamus.
- e. hypothalamus.

8. Many of the structures of the _____ are involved in relaying information between other brain regions.

- *a. midbrain
- b. hindbrain
- c. forebrain
- d. cerebral cortex
- e. frontal lobes

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

- a. hindbrain.
- *b. forebrain.
- c. midbrain.
- d. medulla.
- e. spinal cord.

10. The function of the thalamus is to:

- a. coordinate muscle activity.
- *b. relay information.
- c. regulate hormones.
- d. regulate emotional reactions.
- e. form memories.

11. Damage to the thalamus might result in an inability to:

- *a. relay information from one part of the brain to another.
- b. coordinate muscle activity.
- c. processing visual and auditory information.
- d. regulate hormones.
- e. remember information from one's early life.

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

- a. thalamus
- b. medulla
- *c. hypothalamus
- d. pons
- e. cerebellum

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

- *a. memory formation
- b. temperature
- c. eating and drinking
- d. sexual behavior
- e. sleeping

14. Rats with damage to the _____ may starve themselves to death because they fail to eat.

- *a. hypothalamus
- b. thalamus
- c. cerebellum
- d. hippocampus
- e. amygdala

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

- a. thalamus
- b. hypothalamus
- *c. hippocampus
- d. pons
- e. amygdala

16. Damage to the hippocampus would result in:

- a. death.
- b. blindness.
- *c. loss of the ability to form new memories.
- d. deafness.
- e. loss of balance.

17. 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

18. 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

19. 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. amygdale.
- e. superior colliculi.

20. Split brain operations involved severing which brain structure?

- a. medulla oblongata
- *b. corpus callosum
- c. anterior commisure
- d. amygdala
- e. superior colliculi

21. 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

22. 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

23. Damage to the occipital lobe could result in difficulty processing:

- a. auditory information.
- b. memories.
- c. sensations of pain.
- *d. visual information.
- e. sensations of temperature.

24. After a head injury, Mary has difficulty with her sight. Which lobe of the brain was probably affected?

- a. frontal
- b. temporal
- *c. occipital
- d. parietal
- e. central

25. Which of the following is NOT a region of the frontal lobes?

- a. motor cortex
- b. prefrontal cortex
- c. premotor cortex

*d. postcentral gyrus

26. The _____ is involved in the planning of fine motor movements.

- *a. premotor cortex
- b. motor cortex
- c. prefrontal cortex
- d. frontal cortex
- e. occipital cortex

27. Phil was once an accomplished pianist, but after a head injury, he has lost his ability to play the piano. Which part of the cortex was probably damaged?

- *a. premotor cortex
- b. prefrontal cortex
- c. frontal cortex
- d. occipital cortex
- e. parietal cortex

28. “Executive functioning” involves all of the following EXCEPT:

- a. planning.
- b. making decisions.
- c. using working memory.
- d. inhibiting inappropriate behavior.
- *e. basic sensory processing.

29. Who originated the idea of localization of function?

- *a. Franz Gall
- b. William James
- c. Wilhelm Wundt
- d. Paul Broca
- e. Sigmund Freud

30. It has been reported that the parents of Ray Kroc, the founder of McDonald’s, were told when their son was a baby that he would have a fine career in the food industry. This pronouncement was made by a phrenologist. Upon what would the phrenologist have based such a prediction?

- a. a preverbal IQ test
- b. a CAT scan
- c. the position of the stars on the day of Ray Kroc’s birth
- *d. the bumps and indentations on Ray Kroc’s skull
- e. an fMRI

31. Which of the following assumptions of phrenology was basically correct?

- *a. Different parts of the brain control different functions.
- b. The size of a portion of the brain corresponds to its relative power.
- c. Bumps on the skull coincide with enlarged brain areas.
- d. Different brain faculties are absolutely independent of each other.

e. The size of the overall brain is a good measure of intelligence.

32. 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

33. Disruption of language abilities is referred to as:

- *a. aphasia.
- b. deafness.
- c. prosopagnosia.
- d. somatosensory deficit.
- e. epilepsy.

34. 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. understand both spoken and written language.

35. A patient who could not produce language fluently might be suffering from damage to:

- *a. Broca's area.
- b. Wernicke's area.
- c. the corpus callosum.
- d. the temporal lobe.
- e. the cerebellum.

36. 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. speak with fluent rhythm and appropriately modulated pitch.

37. Jan has difficulty understanding spoken language. Jan may have suffered damage to:

- a. Broca's area.
- *b. Wernicke's area.
- c. the hippocampus.
- d. the cerebellum.
- e. the medulla oblongata.

38. 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. each part receives information from a specific part of the body, and more sensitive parts of the body have correspondingly larger areas of the brain associated with them.
- e. each part receives information from a specific part of the body, and the total amount of “brain real estate” devoted to a particular body part is proportional to the size of that body part.

39. Which of the following body parts is associated with the greatest amount of “brain real estate” in the somatosensory cortex?

- a. the back
- b. the chest
- *c. the fingertips
- d. the thigh
- e. the upper arm

40. Lashley’s studies of ablation in rats suggested that maze running was related to:

- *a. the total amount of cortex removed.
- b. the rat’s age at the time of cortex removal.
- c. the particular part of the cortex removed.
- d. both the location and amount of cortex removed.
- e. both the age of the rat and the total amount of cortex removed.

41. About 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.

42. 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

43. Which of the following is associated primarily with the right hemisphere?

- a. the ability to speak
- b. the ability to understand language
- c. the ability to do arithmetic
- *d. the ability to navigate around familiar spaces
- e. the ability to read

44. 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

45. 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.

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

- a. MRI provides information about neuroanatomy
- b. MRI requires no exposure to radiation
- c. MRI can be used on people who have pacemakers
- d. MRI often permits clearer pictures
- *e. MRI requires no exposure to radiation and permits clearer pictures

47. Which of the following neuropsychological method(s) 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 PET scans and fMRI

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

- a. CAT
- b. MRI
- *c. EEG
- d. ERP
- e. PET

49. Jane is taking part in a sleep study. Her brain wave patterns are being measured to determine her level of consciousness at various points throughout the night. The brain recording technique that is being used on Jane is:

- a. CAT.
- *b. EEG.
- c. ERP.
- d. PET.
- e. MRI.

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

- a. CAT.
- b. MRI.
- c. EEG.
- *d. ERP.
- e. PET.

51. The hypothalamus controls homeostatic behaviors such as eating, drinking, sleeping, and sexual behaviors.

- *a. True
- b. False

52. Modulation of the strength of emotional memories is accomplished by the hippocampus.

- a. True
- *b. False

53. The temporal lobes are located on the sides of the head.

- *a. True
- b. False

54. The prefrontal cortex is involved in executive functioning.

- *a. True
- b. False

55. Disruption of memory is referred to as aphasia.

- a. True
- *b. False

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

- a. True
- *b. False

57. Ablation is a technique of brain research that involves removing parts of the brain.

- *a. True
- b. False

58. Brain plasticity is more prominent in younger people than in older people.

- *a. True
- b. False

59. MRI requires exposure to radiation.

- a. True
- *b. False

60. ERP is used to detect different states of consciousness, for example during sleep.

- a. True
- *b. False

Type: E

61. Name and describe two areas of the forebrain that are involved in memory. How do they differ in function?

- a. The hippocampus is involved in the formation of long-term memories. The amygdala modulates the strength of emotional memories.

Type: E

62. Describe two problems with the assumptions of phrenology.

- a. (1) Phrenology assumed that the size of a portion of the brain corresponded to its relative power. This is incorrect. (2) Phrenology assumed that different mental faculties were completely independent. We now know that faculties interact in many ways.

Type: E

63. Describe how a patient with Wernicke's aphasia might exhibit deficits in language.

- a. Such a patient could speak with normal rhythms and pitch patterns, but their speech would contain gibberish and would not make sense to the listener. The patient would also be unable to understand speech.

Type: E

64. Describe some of the skills of the right hemisphere of the brain.

- a. The right hemisphere is good at synthesizing information, so it is skilled at working geometric puzzles, navigating around familiar spaces, drawing sketches, constructing maps, and appreciating music.

Type: E

65. What advantage do PET scans and fMRI have over CAT scans and MRI?

- a. CAT scans and MRI can show the anatomy of the brain, but not how it works. PET scans and fMRI allow us to measure blood flow to different parts of the brain so that we can see which parts of the brain are most active when a person is performing different types of tasks.