# *Fundamentals of Human Neuropsychology 8th edition Kolb Test Bank*

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Name:_____ Class:_____ Date:_____

## Chapter 01: Multiple Choice

1. Following damage to his frontal lobes, subject L.D. had lasting impairments in:
   a. visual perception.
   b. attention.
   c. motor-skill acquisition.
   d. balance.

*ANSWER:* b

2. Neuropsychology uses information from many disciplines. Which discipline is NOT one of those?
   a. ethology
   b. pharmacology
   c. biophysics
   d. mycology

*ANSWER:* d

3. Communication between cerebral hemispheres occurs via the:
   a. somatic nerves.
   b. lateral fissure.
   c. arcuate fasciculus.
   d. corpus callosum.

*ANSWER:* d

4. Which brain structures create boundaries within the lobes of the brain?
   a. gyri and sulci
   b. sulci and fissures
   c. lobes
   d. forebrain and spinal cord

*ANSWER:* a

5. The corpus callosum is the largest of the brain's:
   a. subcortical nuclei.
   b. commissures.
   c. cortical lobes.
   d. sensory nerves.

*ANSWER:* b

6. The brain and spinal cord together make up the _____ nervous system.
   a. autonomic
   b. peripheral
   c. central
   d. somatic

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**Chapter 01: Multiple Choice**

*ANSWER:* c

7. Which individual prompted such phrases as “put your heart into it” and “wore his heart on his sleeve” in regards to the relationship between the heart and behavior?
   a. Plato
   b. Galen
   c. Aristotle
   d. Hippocrates

*ANSWER:* c

8. Descartes was an articulate proponent of:
   a. monism.
   b. dualism.
   c. the cardiac hypothesis.
   d. nonmaterialism.

*ANSWER:* b

9. If a person believes that brain function is the source of only some behaviors, it is accurate to refer to that person as a:
   a. mentalist.
   b. behaviorist.
   c. materialist.
   d. dualist.

*ANSWER:* d

10. With respect to the “mind–body” problem, followers of Wallace and Darwin would MOST likely consider themselves to be:
   a. mentalists.
   b. materialists.
   c. dualists.
   d. agnostics.

*ANSWER:* b

11. Two individuals developed similar theories of evolution at about the same time. Charles Darwin was one; the other was:
   a. William Osler.
   b. Pierre Flourens.
   c. Pierre Marie.
   d. Alfred Wallace.

*ANSWER:* d

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**Chapter 01: Multiple Choice**

12. Materialism is the philosophical position that all behavior can be explained by the:
    a. workings of the physical nervous system and body alone.
    b. interaction of the physical brain and nonphysical soul.
    c. motivated pursuit of material well-being.
    d. flow of cerebrospinal fluid between ventricles and muscles.

*ANSWER:* a

13. Darwin's principle that all animals' nervous systems evolved from that of a common ancestor predicted that:
    a. all living things can in theory be traced back to the same ancient unknown ancestor.
    b. over time, nervous systems have come to have increasingly more in common at the neural level.
    c. functionally different structures in different species share common ancestral genes and mechanisms.
    d. brain–behavior relationships have remained largely unchanged during the course of evolution.

*ANSWER:* d

14. Although the phrenologists were misguided in many respects, Gall actually did report, more or less accurately, the first case of _____ following left frontal damage.
    a. cortical blindness
    b. hysterical paralysis
    c. the loss of the ability to speak
    d. personality change

*ANSWER:* c

15. Although all of the individuals listed made contributions to our knowledge of the lateralization of language functions in the brain, _____ is generally credited with the MOST important findings.
    a. Dax
    b. Bouillaud
    c. Marie
    d. Broca

*ANSWER:* d

16. The cortical area MOST closely associated with speech comprehension is the _____ lobe.
    a. temporal
    b. frontal
    c. occipital
    d. parietal

*ANSWER:* a

17. Apraxia is the inability to:
    a. learn a new motor skill.
    b. produce articulate speech.
    c. make sequences of movements.

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**Chapter 01: Multiple Choice**

d. combine sensory stimuli into a coherent perception.

*ANSWER:* c

18. The currently used medical diagnosis persistent vegetative state MOST closely reflects the nervous system's:

a. hierarchical organization.
b. conduction aphasia.
c. localization of function.
d. Hebb synapse.

*ANSWER:* a

19. A person who cannot understand how the brain ties together past perceptions and actions in a unified memory is pondering:

a. apraxia.
b. the binding problem.
c. aphasia.
d. neuron theory.

*ANSWER:* b

20. The scientist who discovers how a unitary perception is made from multiple streams of sensory information will have solved the:

a. mind–body problem.
b. binding problem.
c. problem of other minds.
d. laterality conundrum.

*ANSWER:* b

21. Sherrington's studies of the reflex arc in dogs led him to conclude that:

a. there are gaps between individual communicating neurons.
b. communicating neurons are directly connected with one another.
c. all neural communication is electrical in nature.
d. reflexes are coordinated by the pineal body, even in dogs.

*ANSWER:* a

22. The scientific discipline BEST associated with the development of intelligence tests is:

a. neurology.
b. psychosurgery.
c. psychometrics.
d. neuropsychology.

*ANSWER:* c

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**Chapter 01: Multiple Choice**

23. Individuals with deficits in executive functioning would likely have difficulty with:
    a. critical thinking and multistep tasks.
    b. critical thinking and single-step tasks.
    c. basic reasoning and motor skills.
    d. basic reasoning and balance.

*ANSWER:* a

24. Considering functional development, why would the spinal cord develop prior to the forebrain?
    a. Cognitive abilities are not essential for survival.
    b. Higher order functioning precedes conducting information to and from the brain.
    c. Sensory information processing precedes the development of higher order functioning.
    d. Executive functioning tasks are secondary to regulatory functioning of the brainstem.

*ANSWER:* c

25. A set of siblings suffered neurological damage following a car accident. Sibling A has had a slow and incomplete recovery, while sibling B has fully recovered. Considering their recovery, what portion of their nervous system was likely damaged?
    a. sibling A – central nervous system, sibling B – peripheral nervous system
    b. sibling A – peripheral nervous system, sibling B – central nervous system
    c. sibling A – central nervous system, sibling B – central nervous system
    d. sibling A – peripheral nervous system, sibling B – peripheral nervous system

*ANSWER:* a

26. How does examination of patients with a traumatic brain injury (TBI) further neurological knowledge?
    a. aids researchers in connecting damage to localization and lateralization of function
    b. provides an understanding of neuroplasticity
    c. provides an understanding of the mind–body connection
    d. aids researchers in understanding the material versus the nonmaterial mind

*ANSWER:* a

27. Why was Wernicke's idea of disconnection revolutionary?
    a. It explained new language disorders.
    b. It built upon previous theories of brain functioning.
    c. It demonstrated not only lateral and localization of function but also interdependence of brain structures.
    d. It demonstrated the importance of studying brain lesions.

*ANSWER:* c

28. How can current technology, such as deep brain stimulation, CT scans, and MRIs, aid in understanding consciousness?
    a. aids in a better understanding of the connection between behavior and consciousness

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**Chapter 01: Multiple Choice**

b. aids in a better understanding of the lack of consciousness
c. helps restore consciousness in impaired patients
d. helps determine differences between persistent vegetative state (PVS) and minimally conscious state (MCS)

*ANSWER:* a

29. Extensive study of H.M. BEST demonstrates:
a. support of two brain theory.
b. effective treatment of epilepsy.
c. that amnesia can be the result of brain damage.
d. that memories are encoded and stored in multiple areas of the brain.

*ANSWER:* d

30. What is the reasoning as to why D.F. could see an object when performing an action but could not recognize the item being acted on?
a. damage to the motor cortex
b. damage to both visual and motor areas
c. damage to the pathway from the visual cortex to the temporal lobe
d. damage to the pathway from the visual cortex to the parietal lobe

*ANSWER:* c

31. D.F. had damage to what brain structure?
a. parietal lobe
b. ventral stream
c. frontal lobe
d. dorsal stream

*ANSWER:* b

32. Patients with brain damage like L.D., H.M., and D.F. BEST demonstrate:
a. the importance of conscious behavior.
b. the importance of studying and understanding brain lesions.
c. examples of the binding problem.
d. the connection of conscious and unconscious behavior for sensory information.

*ANSWER:* d

33. How do individuals experience memory and vision?
a. as a single pathway of conscious behavior
b. as multiple pathways of conscious behavior
c. as a single pathway of both conscious and unconscious behavior
d. as multiple pathways of both conscious and unconscious behavior

*ANSWER:* d

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**Chapter 01: Multiple Choice**

34. How would neural communication differ if each neuron had only one dendrite?
    a. slower communication between neurons
    b. increased transfer of information within the neuron
    c. increased communication between neurons
    d. no notable difference in transfer of information within the neuron

*ANSWER:* a

35. How can stained images of a neuron support the theories that neurons are autonomous and interconnected?
    a. Neurons can work together and be the functional unit of the nervous system.
    b. Neurons can work as a neural net for learning while still being the basic unit of the nervous system.
    c. Neuron staining supports only Cajal's theory.
    d. Neuron staining supports only Golgi's theory.

*ANSWER:* b

36. Studies in electrical stimulation of the brain support the idea of:
    a. functional and lateral localization.
    b. neuroplasticity.
    c. phrenology.
    d. hierarchical organization.

*ANSWER:* a

37. Neuroplasticity is seen in patients with TBI, and it is also related to:
    a. taste.
    b. learning.
    c. vision.
    d. smell.

*ANSWER:* b

38. Neurosurgery and neuropsychology studies allow for a better understanding of:
    a. consciousness.
    b. brain lesions.
    c. both “typical” and “atypical” behavior.
    d. learning.

*ANSWER:* c

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Fundamentals of Human Neuropsychology 8th edition Kolb Test Bank

Name:_____ Class:_____ Date:_____

## Chapter 01: Short Answer

1. Distinguish between sulci and gyri in the cerebral cortex.

*ANSWER:* Gyri are folds or bumps in the cortex, while sulci are creases or indentations in the cortex.

2. Distinguish between the functions of the spinal cord, brainstem, and forebrain.

*ANSWER:* The spinal cord conveys sensory information to the brain and sends information from the brain to the muscles about movement. The brainstem mediates regulatory functions like eating and drinking, and the forebrain mediates cognitive functions.

3. What was Descartes's view of the mind–body problem?

*ANSWER:* Descartes believed the mind and body were separate entities. He viewed the nonmaterial mind as controlling the material body through the pineal body in the brain.

4. For the study of nervous system functions, what are the implications of Darwin's theory that all animals had a common ancestor?

*ANSWER:* Darwin's theory inspired the study of nervous system functions in different species for comparison with one another. If all animals, including humans, have a common ancestor, then there will be similarities across species in brain structure and function.

5. Why is aphasia following a stroke usually associated with paralysis or difficulty with movement on the right side of the body?

*ANSWER:* Damage to the frontal lobe usually results in motor impairment of movements on the contralateral side of the body. Since damage to the left frontal lobe is associated with aphasia, it would also be associated with motor impairments on the right side of the body.

6. What was Broca's main contribution to the concept of lateralization of function in the human brain?

*ANSWER:* Broca's clinical studies established that speech was associated with damage to the third frontal convolution of the cortex in the left frontal lobe. This is probably the first documented lateralized function in the human brain.

7. What was Wernicke's main contribution to the concept of a modular functional organization of the human brain?

*ANSWER:* Wernicke created the first model of how the brain produces language, where damage to the left temporal lobe would result in an inability to understand language, even though speech movements from Broca's area were intact and hearing preserved. This introduced the idea that independent modules handle different aspects of language processing, even though they work together.

8. Describe how the concept of hierarchical organization, as stated by Hughlings-Jackson, is consistent with the apparently disparate research findings of localizationist and antilocalizationist theories of brain function.

*ANSWER:* The hierarchical organization model of Hughlings-Jackson suggests that behaviors are represented in each level of the hierarchy, such that damage at one level leaves a simpler form of the behavior from the lower parts of the hierarchy. This is consistent with both localizationist and antilocalizationist research results.

9. Briefly discuss what John Hughlings-Jackson meant by his concept of hierarchical organization and its connection with brain trauma.

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**Chapter 01: Short Answer**

*ANSWER:* Hughlings-Jackson suggested that the spinal cord, brainstem, and forebrain developed successively, in that order, during evolution. Earlier-evolved animals and animals with injuries at higher levels would have simpler behaviors than those with the spinal cord, brainstem, and forebrain intact.

10. What contributions have been made by the study of split-brain subjects to our understanding of the organization of cognitive abilities?

*ANSWER:* Such studies have allowed for the study of the behavioral capacity of each hemisphere in isolation from the other, and these studies have revealed the relative lateralization of cognitive processes related to language in one hemisphere and spatial processing in the other hemisphere.

11. Sketch and label the main parts of a neuron.

*ANSWER:* See Figure 1.9, "Major Parts of a Neuron," in the text.

12. Of what historical significance were the experiments of Fritsch and Hitzig?

*ANSWER:* Their studies demonstrated that the cerebral cortex is electrically excitable and that such electrical stimulation in different cortical areas produced movements in specific body regions contralateral to the stimulated hemisphere. This demonstrated topographical organization of the motor cortex.

13. What definitive evidence refutes the nerve net hypothesis of the nervous system?

*ANSWER:* Electron microscopy studies in the twentieth century showed that each neuron is a physically separate entity.

14. What does it mean for the cortex to be organized topographically?

*ANSWER:* It means that mapping specific areas of the cortex is possible for information coming from or being sent to a particular body region. Such a mapping on the cortex represents a specific spatial transformation of the topography of the body's surface.

15. What is a Hebb synapse?

*ANSWER:* A Hebb synapse is a synapse that has been altered to become more efficient on the basis of use, as in a synapse that takes part in a neural network that stores memory.

16. Describe the contributions of psychometrics to the field of neuropsychology.

*ANSWER:* The standardization of measures of various abilities developed for IQ testing has been employed to objectively evaluate the effects of dysfunction in specific brain regions. These data provided the first details of functional models of the human brain.

17. Discuss the ways statistics are useful in dealing with individual differences in neuropsychological experiments.

*ANSWER:* Statistics have allowed the ability to see patterns of abilities in large samples, as in the use of frequency distributions. Such summaries of data led to the discovery of the normal distributions of abilities and allow for more accurate quantification of individual differences in ability associated with brain dysfunction in various specific brain regions.

18. Compare Aristotle's and Descartes's view of the mind.

*ANSWER:* Aristotle was a proponent of mentalism, while Descartes followed the theory of dualism. Both

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**Chapter 01: Short Answer**

believed that a nonmaterial "psyche" or mind was separate from the body but worked through structures within the body to produce action.

19. Explain how studies in electrical stimulation of the brain in animals have impacted neurological research.

*ANSWER:* Studies in electrical stimulation in animals were the basis of understanding that the flow of electricity through the body causes muscle contraction. More broadly, electrical stimulation research has demonstrated the flow of information within the brain.

20. Describe the influence of neurosurgery on the field of neuropsychology.

*ANSWER:* Advancements in neurosurgery have allowed for the mapping of the brain during surgeries for removal of brain lesions. Stimulation of brain tissue during these surgeries demonstrated the extent of the damage. Correlations between the location of brain lesions and behavior changes gave rise to further neuropsychological knowledge.

Different theorists throughout the ages have placed mental processes in various parts of the body. Choose the appropriate body region for each theorist.

a. pineal gland

b. heart

c. brain

21. Aristotle

*ANSWER:* b

22. Descartes

*ANSWER:* a

23. modern neuroscientists

*ANSWER:* c

The nineteenth century saw increased scientific interest in the functions of the brain. Match the scientist(s) with the MOST appropriate phrase.

a. conduction aphasia

b. recovery of function

c. electrical excitability of the cortex

d. left hemisphere localization for speech

24. Dax

*ANSWER:* d

25. Wernicke

*ANSWER:* a

26. Flourens

*ANSWER:* b

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**Chapter 01: Short Answer**

27. Fritsch and Hitzig
*ANSWER:* c

Following Broca, several other investigators extended knowledge regarding the association of brain damage and language and movement disorders. For each individual, choose the MOST appropriate alternative from the list.
a. Wernicke
b. Dejerine
c. Hughlings-Jackson
d. Liepmann

28. fluent aphasia
*ANSWER:* a

29. alexia
*ANSWER:* b

30. hierarchical organization
*ANSWER:* c

31. apraxia
*ANSWER:* d

The history of neuropsychology has been influenced by a variety of hypotheses regarding the functional organization of the human brain. For each hypothesis, choose the individual MOST closely associated with that idea.
a. antilocalization
b. hierarchical organization
c. nerve net hypothesis
d. neuron hypothesis

32. Goltz
*ANSWER:* a

33. Hughlings-Jackson
*ANSWER:* b

34. Golgi
*ANSWER:* c

35. Ramón y Cajal
*ANSWER:* d

Match the individual(s) with the MOST appropriate term.
a. Galvani

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**Chapter 01: Short Answer**

b. Hodgkin and Huxley
c. Sherrington
d. Loewi

36. electrical stimulation of muscle contractions
*ANSWER:* a

37. ionic conduction of nerve impulse
*ANSWER:* b

38. synapse
*ANSWER:* c

39. chemical neurotransmission
*ANSWER:* d

For each discipline, choose the MOST appropriate alternative.
a. neurosurgery
b. psychometrics
c. brain imaging
d. phrenology

40. stereotaxic device
*ANSWER:* a

41. intelligence quotient
*ANSWER:* b

42. positron emission tomography
*ANSWER:* c

43. failed in developing a functional atlas of the human brain
*ANSWER:* d

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