Essentials of Cognitive Neuroscience 2nd edition Postle Test Bank

SKU: 9781119674153-TEST-BANK

Chapter 1

Multiple Choice/True False

1. True or false: The most important contribution of Franz Josef Gall's theory of Phrenology was that it pioneered the use of the scientific method in the study of the brain.

   [false]

2. True or false: Topographic representation is evidence in favor of the principle of localization of function.

   [true]

3. Which of the following findings from the work of Flourens was interpreted as evidence for equipotentiality of brain function:
   a. Damage to many different brain areas seemed to produce impairment of judging, remembering, and perceiving. **[True]**
   b. Different mental traits, such as cautiousness and benevolence, were supported by discrete brain areas.
   c. The motor cortex has a topographical representation, such that the areas of the brain that represent the fingers, then the palm, then the wrist, then the elbow are adjacent to one another.
   d. Damage to occipital cortex produces more profound and enduring impairment of visual perception than does damage to parietal cortex.

4. Fritsch and Hitzig (1870) demonstrated that electrical stimulation of the frontal lobe produces movements of the body, but that electrical stimulation of the parietal lobe does not. This is a demonstration of
   a. Anatomical specificity **[true]**
   b. Mass action
   c. Equipotentiality
   d. Contruct validity

Short Answer / Fill-in-the-blank

1. With regard to neuroanatomy, _____ refers to the front of the brain of a standing human, and _____ to the portions near or along the midline.
   a. Frontal, medial

2. Paul Broca discovered that damage to what part of the brain impairs speech?
   a. Left inferior frontal

3. Lesions of the occipital impair which sensory function in primates?

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    a. Vision

4. Nineteenth-century studies of what three functions provided important evidence for the principle of localization of function in the brain?
    a. Motor control (Fritsch and Hitzig), vision (Munk and Ferrier), speech (Broca)

Essay / Longer Answer

1. Describe phrenology. What principle(s) from phrenology still have some validity today? What aspects of phrenology are no longer considered to be scientifically valid?

2. Contrast localization-of-function with mass-action theories of brain function.

3. What does the term *Jacksonian march* refer to, and what property of the brain was inferred from it?

4. What is construct validity?

5. What does it mean for a property of cognition to be “emergent”?

6. What is the distinction between neuropsychology and systems neuroscience?

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