

9.14_2014

Homework #7

Due before Lecture 36.

Name _____

Please answer any 6 of the following 8 questions. You will receive extra credit for answering the extra 2 questions.

- 1) Describe a pathway underlying a learned fear of a specific dog. Begin with neocortical areas and proceed to structures that cause autonomic responses like a raised heart rate. (Just name major structures or regions in your pathway.)
- 2) Contrast the pathways to motor cortex and the pathways to the superior colliculus from the dorsal striatum (caudate-putamen). Add a description of one likely pathway that visual information could take in a mammal to reach the dorsal striatum.
- 3) Transplants of embryonic dopamine-producing cells have been placed into the dorsal striatum of patients with Parkinson's Disease. How is the specific locus of a transplant related to possible functional effects?
- 4) Neocortex can be compared with the Wulst of birds because of similarities in connections. What is one example of these connections? What other major part of the bird's endbrain has connections from the thalamus like those of the neocortex of mammals?
- 5) The primary motor cortex appears to have evolved from a sensory cortical area. What sensory cortex? What evidence for this has been found?
- 6) Describe at least three different kinds (different structural arrangements) of local cortico-cortical connections where the axons do not pass through the white matter below layer 6.
- 7) Contrast the morphological extremes in neocortical areas by comparing the primary motor cortex and the primary visual cortex. It is sufficient to consider only the results of Nissl-stained sections (to visualize cell bodies).
- 8) Make an organized diagram or table of thalamocortical projections, naming each major thalamic nucleus and its major projection territory in the neocortex.

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9.14 Brain Structure and Its Origins

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