

## 9.01 Study Questions

### Lecture 9

1. To interface with the outside world, animals have evolved elaborate systems for sensory reception and analysis and for motor control and coordination. How can cognitive systems be conceptualized as extensions of these two types of systems?
2. The forebrain probably expanded in evolution initially because of the importance of \_\_\_\_\_.
3. Give an example of a “correlation center” that evolved as a connection between sensory analyzers and motor control mechanisms.
4. What are the “distance receptors”? What sense allows an animal to detect certain things that occurred earlier in time? Can you do this?
5. Give two examples of human “fixed action patterns” (FAPs, so named by ethologists).
6. What was an early change that led to the great expansion of the endbrain in evolution?
7. Are the animals with the largest brains the most intelligent animals? What other factors influence brain size?
8. Name two animals with brains larger than the human brain.
9. What are two unique characteristics of the chordate phylum, one mesodermal and one ectodermal. (This phylum includes all vertebrates.)
10. Distinguish the terms “phylogeny” and “ontogeny”.
11. Give three examples of sensory specializations in particular species of vertebrates, specializations that include expanded representations in the CNS.
12. What are two additional behavioral specializations, in primates, that include expanded control areas in the CNS.
13. The first "Shmoo" CNS diagrams (Shmoo 1) depict a putative pre-mammalian brain. Such a brain is shown without a \_\_\_\_\_, an endbrain structure characteristic of all mammals.
14. In what two major divisions of the mammalian brain are the fluid-filled ventricles the largest?

15. Give a simple definition for the following terms: primary sensory neuron, secondary sensory neuron, motor neuron.
16. In what sense is a primary sensory neuron in the olfactory system the most primitive type of mammalian primary sensory neuron?