

Study Guide Chapter14
The Brain & Cranial Nerves

1. What are the three major divisions of the brain?
2. Define the following terms: sulcus, gyrus, fissure.
3. How is the brainstem subdivided?
4. What is the difference between the nervous tissues' ganglia and nuclei?
5. How is the connective tissue surrounding the brain organized? What is the relationship between the dura mater and cranial sinuses? What role does the arachnoid villus play in this relationship? (Fig 14.5)
6. What is cerebrospinal fluid and where is it found? What is the name for the special ependymal cells that produce the CSF?
7. How many ventricles are in the brain?
8. What is a brain barrier system and why do we need a BBS? How many different types of BBS do we have in the brain? Is there a brain-CSF barrier?
9. What type of substance can pass through the brain barrier system?
10. What type of functions are associated with the medulla oblongata? The inferior olivary nucleus is located in the medulla oblongata. What is the function of the olivary nucleus?
11. What structure is between the pons and the cerebellum?
12. The pons is a relay station for nerve tracts in the CNS. What are the structures between the "down" signals and "up" signals? What type of functions are regulated by the pons' nuclei?
13. What are the functions of the cerebellum? (page 527 / column 2 / paragraph 1)
14. How are signals processed in association with the cerebellum by the three different cerebellar peduncles?
15. There are many important nuclei in the midbrain. One such nuclei is the substantia nigra. What is the function of this nuclei and what disease is associated with the degeneration of the neurons in the substantia nigra?

16. Where is the reticular formation located? What type of functions are associated with the reticular formation?
17. What three structures form the diencephalon?
18. What are three general functions attributed to the thalamus? (page 529 / column2 / paragraph 5)
19. What is the major control center for the autonomic nervous system and endocrine system?
20. What are the functions of the stellate cells and pyramidal cells of the cerebral cortex?
21. Where are the basal nuclei located relative to the thalamus? What is the general function of the basal nuclei?
22. Where is the limbic system located and what type of functions are associated with this structure?
23. What is the function of the hippocampus? What is memory consolidation?
24. The prefrontal cortex is the seat of judgment, intent and control over the expression of our emotions. However, where do the feelings themselves and the emotional memories actually form?
25. What are somesthetic sensations? How are somesthetic sensations routed to the primary somesthetic cortex? Where is the primary somesthetic cortex located?
26. What is the location and function of the sensory association area?
27. Where is the intent to contract a skeletal muscle located and what is this area called?
28. How many neurons form the path between the motor association area and a skeletal muscle? What are these neurons called?
29. What is the function of the Wernicke and Broca areas in language?
30. What are cranial nerves? Where do they originate and how do they exit the cranium? Are cranial nerves sensory or motor? What type of signals are carried by cranial nerves?