

## **CSF Build-up and Carbonic Anhydrase Inhibitors**

### **Description:**

Do a full-brain workout to study for this exam. This technique is perhaps the single most effective way to master a topic because it includes: recalling information, describing a topic as thoroughly as possible, thinking about a concept from many angles, actively reviewing your notes and textbook, writing about a topic, seeking and correcting misunderstandings, and critically deriving the simplest correct answer for the question being asked.

### **Directions:**

1. Follow these steps in sequential order:
  - a. Using a colored pen (e.g. **green**) and only your own memory, write down everything you can to answer the question. This includes definitions, diagrams, feedback pathways, graphs, concept maps, keywords, sketches—anything at all.
  - b. Using a different colored pen (e.g. **purple**) and all the resources you have available (notes, lecture recordings, the textbook, the Internet, etc.), fill in any information you did not originally include in your answer. Additionally, use a third color of pen (e.g. **red**) to correct anything that you wrote down incorrectly.
2. Once you have collected all the pertinent information to answer the question in one place, in a separate space work to come up with the most complete, yet concise answer possible that would correctly answer the question being asked.

### **Inking Prompt:**

Some individuals over produce cerebrospinal fluid (CSF), which builds up around their brain and spinal cord to cause chronic severe headaches. Frequently, a carbonic anhydrase inhibitor (a diuretic) is prescribed to reduce CSF fluid volume. For this question, consider the importance of carbonic anhydrase in the proximal tubule of the renal nephron.

- a. Diagram in detail how carbonic anhydrase inhibition functions as a diuretic.
- b. One potential side effect of carbonic anhydrase inhibitors is acidosis. Using your diagram, explain how acidosis could result and what one's body would do in response to these acidic conditions.