

PSYCH 511 Quiz 2

October 18, 2017

Answer the questions in the spaces provided on the question sheets. If you run out of room for an answer, continue on the back of the page. Circle the correct answer or answers to multiple choice/fill-in questions. The quiz is due *Wednesday, October 25, 2017, by the start of class.*

Name: _____

1 Main

1. Describe the concentration and electrostatic gradients that act on K^+ in the neuron at rest.

2. Describe the concentration and electrostatic gradients that act on Na^+ in the neuron at rest.

3. What event(s) triggers the *rising phase* of the action potential?

4. The movement of which ion causes the *falling phase* of the action potential? Which direction does this ion move during the falling phase?

5. Briefly describe the roles of glutamate and GABA in the CNS.

6. All of the following monoamine neurotransmitters are released from nuclei located in the midbrain and brainstem, except _____.
 - A. Dopamine
 - B. Norepinephrine
 - C. Histamine
 - D. Serotonin

7. With the exception of a single serotonin receptor type, all of the monoamines bind to a/an _____ receptor.
 - A. metabotropic
 - B. ionotropic
 - C. voltage-gated
 - D. presynaptic

8. What part of the human brain is relatively large in comparison to other mammals? Which part of the brain (hint: it's adjacent to the 4th ventricle) is largely constant in relative size across mammals? What feature of the human brain is now thought to be distinctive, relative to other animals?

9. Describe one of the phases of human brain development that ends before birth and a second that continues well after birth.

10. Why does Gilmore say that acetylcholine is the neurotransmitter of CNS output?

2 Bonus

11. Which sensory systems use information derived from comparing signals from two spatially separate sensors?

12. Benzodiazepines like Valium bind to a site on which neurotransmitter receptor? Do they serve as agonists, facilitating normal transmission, or antagonists, impeding it?

13. The cells lining the cerebral ventricles and central canal of the spinal cord may be critical to the development of treatments for neurodegenerative diseases. Why?