Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ I agree to abide by the Honor Code \_\_\_\_\_\_\_

Biopsychology Exam 1 Do Over

Please answer twice as many questions as you need to gain back 1/2 of the points you lost on Exam 1.  (If you lost 30 points, answer 30 points worth correctly and you will get 15 points back.)  You need to get them completely right to get the points, so if you are unsure about any, answer some more to be safe.  Try to complete this by a week from Monday if you can.  You can either email it to me or print it out and turn it in to me on Monday the 14th.

**Multiple Choice**: Circle the BEST answer. 2 points each.

1. This ion has the force of electrostatic pressure pushing it inside of the cell and the force of random motion pushing it inside the cell.

1. sodium
2. potassium
3. chloride
4. none of the above

2. During the action potential, what happens first, do sodium channels close or potassium channels open?

1. Sodium channels close
2. Potassium channels open
3. They both open and close at the same time
4. none of the above

3. Which of the following was likely active while you took this test the first time?

1. ANS
2. Sympathetic NS
3. Parasympathetic NS
4. Somatic NS

4. The two main structures of the Metencephalon are the

1. pons and cerebellum
2. thalamus and hypothalamus
3. caudate and putamen
4. pons and thalamus

5. Action potentials are stopped by the

1. closing of voltage-activated sodium channels
2. opening of voltage-activated potassium channels
3. action of the sodium-potassium pump
4. all of the above

6. The dopamine system thought to be involved in Parkinson’s Disease projects from the \_\_\_\_\_\_\_\_\_\_\_\_ in the midbrain to these two areas of the basal ganglia, the \_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_.

a. red nucleus; caudate, putamen

b. substantia nigra; caudate, putamen

c. substantia nigra; globus pallidus, red nucleus

d. mesencephalon; red nucleus, substantia nigra

7. Why did Jimmy G. think he was much younger than he actually was?

a. Because he had Alzheimer’s disease.

b. Because he was an alcoholic.

c. Because he was just joking.

d. Because he had Korsakoff’s syndrome.

8. I have conducted an experiment to test the effects of ginseng on maze performance in rats. Half of the rats get a dose of ginseng mixed in their food, and the other half does not. The times to complete the maze are compared between the two groups. What is my dependent variable?

a. dose of ginseng

b. time to complete the maze

c. number of errors in the maze

d. none of the above

9. The entry of this ion into the neuron causes the synaptic vesicles to release neurotransmitter into the synaptic cleft.

a. Na+

b. Ca++

c. K+

d. Cl-

**True or False**: Write out the whole word (true or false) in the blank or it is wrong (1 point each)

10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Schwann cells are found in the CNS.

11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The primary functions of the basal ganglia include voluntary movement and anticipating reward.

12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The white matter of the brain is primarily composed of tracts or bundles of myelinated axons.

13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Autoreceptors are located on the cell membrane of the *pre*synaptic neuron.

14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_An action potential is considered to be an “all or none” response.

15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Curare is an antagonist at the muscarinic acetylcholine receptor.

16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The dorsal root of the spinal cord is composed of afferent neurons entering the spinal cord.

**Fill in the blank**: (1 point each, a blank may be one or more words, do not abbreviate, if unsure of spelling - spell it like it sounds)

17. Researchers in this subdivision of biopsychology might destroy or damage part of the brain and see what the effects are on behavior. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. Researchers in this subdivision of biopsychology might study what area of the brain is activated when people read the names of items, for instance tools. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. This small molecule neurotransmitter is released when the sympathetic nervous system is active \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

20. Neurons that carry information from the CNS to the muscles are classified as \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ neurons.

21. The most common inhibitory neurotransmitter in the brain is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

22. What is the name of the menynx that provides the most protection of the brain (two words)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. What is the name of the part of the limbic system that early anatomists thought was shaped like a seahorse? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. The structure that controls the ANS and endocrine systems is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

25. If you thought your parents were imposters, you might be suffering from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

26. What is the name of the white matter that connects the two lobes of the thalamus? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

27. Another name for posterior, that means “toward the tail” is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

28. What is the fissure that separates the parietal from the temporal lobe? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

29. What is the fissure that separates the frontal from the parietal lobe? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30. What is the name of the gyrus that allows you to feel sensation on a specific part of your body? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

31. What lobe controls aspects of vision, audition, and contains structures important for memory and emotion?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

32. What part of the ventricular system is found in the inferior portion of the hindbrain? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

33. What is the name of the structure that allows for communication between the left and right hemispheres?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

34. Where is the dorsal surface of the human brain (top, bottom, front, back)?

**Short answer/Essay**: Please write in complete sentences so the meaning is clear to me (as if you’re writing for someone who doesn’t know the answer) and answer everything the questions ask. When LIST or LABEL is used, a brief answer (not a complete sentence) is sufficient.

35. Assume the lines below represent an axon.

A) Label the three types of “ions” that contribute to the resting membrane potential (don’t worry about the interior proteins). Put the ions where they would be primarily found for a neuron AT REST.

B) Label with a dashed line which way the electrostatic pressure is pushing the ions (inside or outside). Label with a solid line which way random motion is pushing the ions (inside or outside). (8 pts)

extracellular

intracellular

36. Which *divisions* (cephalons) of the brain are associated with the forebrain? What are the main structures found in these divisions of the forebrain? What part or parts of the ventricular system runs through this area of the brain? (10 pts)

37. For saltatory (myelinated) conduction, what is the primary advantage of it? How is the Action Potential conducted in in myelinated neurons? How is conduction of the AP in an unmyelinated neuron different than this? (4 pts)

38. What is an EPSP? Tell what this is an abbreviation for and explain what it refers to. Does this make the neuron more or less likely to fire? (3 pts).

39. Briefly describe four of the seven steps of neurotransmitter action (seven steps in neurotransmitter “life cycle” listed at the end of chapter 4).

How would an agonist exert an effect on *one* of these steps? (3 pts)

40. What are 3 differences between ionotropic receptors and metabotropic receptors? Use complete sentences. (3 pts)

41. What are two reasons the case of Hose and the bull is an example of bad science? (2 pts)

42. List the two mechanisms to stop neurotransmitter action (2 pts).

43. What are two different functions of glial cells? (Use complete sentences.) (2 pts)

44. List the neurotransmitter classified as an indolamine. (1 pts)