Chapter 3 - Biopsychology
Study Guide - Complete this for extra credit for chapter 3

Name:
Seat #:
Per. #:

1. Briefly explain the concept of genotype and phenotype.

2. Select the parts of neural transmission that are presented in the correct order.
   A) soma, dendrites, axon, neurotransmitters, terminal buttons
   B) dendrites, axon, soma, terminal buttons, neurotransmitters
   C) terminal buttons, dendrites, soma, axon, neurotransmitters
   D) dendrites, soma, axon, terminal buttons, neurotransmitters
   E) axon, soma, dendrites, terminal buttons, neurotransmitters

3. Ricky's baseball team is not having a very good season. In their last game, they had a number of errors that resulted in some major injuries for the team. There was a collision between the first baseman and a runner that resulted in the first baseman "seeing stars" and the runner not being able to walk in a straight line. Later in the inning, the right fielder leapt for a ball, but instead landed on his head: he has temporarily lost his hearing ability. The coach, fed up with all of the nonsense, fell asleep on the bench. For the following individuals, name the area of the brain that is either damaged or that is regulating the current behavior of the individual.
   first baseman
   runner
   right fielder
   coach

4. Provide examples of four different types of neurotransmitters and briefly explain the function of each.

5. Which technique for studying the brain relies on the brain's electrical activity?
   A) PET
   B) MRI
   C) X-Ray
   D) EEG
   E) CT

6. Briefly explain the concept of natural selection.

7. List the structures found in a neuron and the order through which a message travels.

8. How many chromosomes do we have, and what contribution does each of our parents make to our chromosomes?

9. Briefly explain the difference between an EEG and an MRI and and advantage and disadvantage to using each.

10. Which of the following might carry a neural message across the synapse?
    A) dopamine
    B) the cerebrospinal fluid
    C) an electrical charge
    D) the blood
    E) an axon

11. Which part of the brain communicates directly with the "master gland" of the endocrine system?
    A) the cerebellum
    B) the cortex
    C) the hypothalamus
    D) the pituitary
    E) the brain stem

12. Briefly explain how the sympathetic and parasympathetic nervous systems work together to help us respond to events.

13. Describe the process of synaptic transmission.

14. Which of the following according to an Evolutionary Psychologist is the oldest to newest portion of the brain in the correct order?
    A) limbic system, cerebral cortex, brain stem
    B) brain stem, limbic system, cerebral cortex
    C) limbic system, brain stem, cerebral cortex
    D) brain stem, cerebral cortex, limbic system
    E) cerebral cortex, limbic system, brain stem

15. A brain tumor in the limbic system is most likely to produce changes in a person's
    A) coordination.
    B) emotions.
    C) sleep patterns.
    D) hearing.
    E) vision.

16. Which of the following statements is true?
    A) Humans have evolved from monkeys.
    B) Our genes always influence our environment.
    C) According to an evolutionary psychologist, nurture is mor important that nature.
    D) The is no way for parents to select the gender of their future child.
    E) The environment will always influence how our genes display themselves.

17. Jimmy has recently dissected a turtle in biology and is fascinated with the animal's brain. Jimmy is trying to determine how his own brain might compare to the turtle's. Describe similarities and differences in the brain stem, limbic system, and cerebral cortex.

18. Provide two examples of the specialization of the right and left hemispheres.

19. Behavior consistently found in a species is likely to have a genetic basis that evolved because the behavior has been adaptive. Which of the following human behaviors illustrates this concept?
    A) sending astronauts to the moon
    B) Down syndrome
    C) driving a car
    D) language
    E) thinking

20. In purely evolutionary terms, which one would be a measure of your own success as an organism?
    A) the length of your life
    B) your ability to find food and water
    C) your intellectual accomplishments
    D) the contributions that you make to the happiness of humanity
    E) the number of children you have

21. Which of the following processes are involved in natural selection, the driving force behind evolution?
    A) Individuals best adapted to the environment have a survival advantage.
    B) Individuals that are poorly adapted tend to have fewer offspring.
    C) Some individuals reproduce more successfully than others.
    D) The offspring of some individuals survive in greater numbers than do those of others.
    E) All are correct

22. In the split-brain operation, what part of the brain is severed?
    A) the right hemisphere
    B) the left hemisphere
    C) the corpus callosum
    D) the occipital lobe
    E) the parietal lobe

23. As you are sleeping, the fire alarm in your house goes off, immediate you are wide awake an helping your family to escape from your house. Which part of the nervous system produces this response?
    A) the midbrain
    B) the somatic nervous system
    C) the spinal cord
    D) the sympathetic nervous system
    E) the parasympathetic nervous system

24. Which of the following is a characteristic that might be a part of your phenotype?
    A) the members of your family
    B) what you have learned in school
    C) your height and eye color
    D) your genetic makeup
    E) the childhood diseases you have had

25. Select in order the types of neurons that will transmit a message from it's inception through your response.
    A) sensory, motor, inter-
    B) motor, sensory, inter-
    C) inter-, motor, sensory
    D) motor, inter-, sensory
    E) sensory, inter-, motor