Fundamental Neuroscience 3rd Edition Squire Test Bank
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Chapter 1 – Fundamentals

1. Vertebrate nervous system components are named for both their _____and _____.
   a. size; location
   b. appearance; location
   c. appearance; size
   d. none of these

2. Which of these best describes the interconnected, differentiated, and bioelectrically driven units of the nervous system?
   a. neurons
   b. lobes
   c. networks
   d. axons

3. Neurons are classified according to which of the following?
   a. function
   b. shape
   c. type of transmitter released
   d. all of these

4. Neurons generally have _____ axon (s) and many _____ that extend from the nerve cell body.
   a. one; dendrites
   b. many; dendrites
   c. one; synapses
   d. many; synapses

5. Which cellular component is responsible for structural support for long neuronal processes as well as transport along those processes?
   a. dendrites
   b. spines
   c. microtubules
   d. endoplasmic reticulum

6. Neurons communicate with each other via
   a. astrocytes
   b. mechanical junctions
   c. synapses
   d. microglia

7. Neurotransmitter release occurs in the _____ neuron through binding of the _____ to the membrane.
   a. postsynaptic; protein
   b. postsynaptic; vesicle

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c. presynaptic; protein
d. presynaptic; vesicle

8. When the axon of one neuron synapses on the cell body of another neuron, this is termed
   a. axosomatic
   b. axodendritic
   c. somasomatic
   d. dendrodendritic

9. Synapses are categorized by their _____ and _____.
   a. structure; location
   b. structure; function
   c. size; location
   d. size; function

10. Excitatory and inhibitory _____ produce short-term changes in membrane permeability, while _____ produce a much more lasting change in postsynaptic membrane properties.
    a. enzymes; proteins
    b. proteins; enzymes
    c. amino acids; monoamines
    d. monoamines; amino acids

11. At the molecular level, neuron function is modified by alterations in which these?
    a. regulation of ion channels and binding of synaptic vesicles
    b. regulation of ion channels and alterations in gene expression
    c. binding of synaptic vesicles and growth of microtubules
    d. growth of microtubules and alterations in gene expression

12. What is the hierarchical order of the study of the nervous system (from smallest to largest)?
    a. cellular, molecular, systems, behavioral
    b. cellular, molecular, behavioral, systems
    c. molecular, cellular, systems, behavioral
    d. molecular, cellular, behavioral, systems

13. The brain is broadly subdivided into which regions based on gross anatomy and epidemiology?
    a. forebrain, midbrain, and hindbrain
    b. spinal cord and brain
    c. cephalic, thoracic, and abdominal
    d. rostral, caudal, dorsal, and ventral

14. Clusters of neurons in the central nervous system are known as _____, while they are called _____ in the peripheral nervous system.

a. ganglia; nuclei
b. nuclei; ganglia
c. lobes; sulci
d. sulci; lobes

15. The type of neuronal connections most common to primary sensory and motor cortices in which information flow is sequential by necessity are
a. long hierarchical neuronal connections
b. single circuit divergent circuitry
c. local circuits
d. none of these

16. Which type of neuronal circuit is classified by small spatial domains and relatively few processes?
a. long hierarchical neuronal connections
b. single circuit divergent circuitry
c. local circuits
d. none of these

17. Which type of neuronal circuit contains interregional neurons that typically originate from the hypothalamus, pons, and medulla?
a. long hierarchical neuronal connections
b. single circuit divergent circuitry
c. local circuits
d. none of these

18. Astrocytes and oligodendroglia are examples of what type of non-neuronal cell in the nervous system?
a. choroid plexus
b. meninges
c. macroglia
d. microglia

19. The cells of the choroids plexus secrete
a. cerebrospinal fluid.
b. neurotransmitters.
c. meninges.
d. neuron support proteins.

20. Which of these acts as a filter to isolate the central nervous system from other parts of the body?
a. meninges
b. cerebrospinal fluid
c. spinal cord
d. blood-brain barrier

21. Neuronal plasticity is considered to be
    a. activity-dependent and reversible
    b. limited to childhood
    c. always a product of stem cell generation
    d. limited to the sensory systems

22. Elucidating details about activity-dependent gene expression within neurons is the key way the future research will link
    a. neural networks and neurotransmitters.
    b. the activity of neurons with neuron cell growth.
    c. molecular and behavioral events.
    d. none of these

23. As in all scientific research, neuroscience research ranges from descriptive to _____ in nature and can result in support for, but not _____, that a hypothesis is correct.
    a. prophetic; evidence against
    b. deductive; proof
    c. deductive; evidence against
    d. prophetic; proof

24. Which of these ethical violations is a product of altering existing data in order to skew results?
    a. fabrication
    b. falsification
    c. plagiarism
    d. none of these

Answer Key

1. b. **appearance; location**
2. a. **neurons**
3. d. **all of these**
4. a. **one; dendrites**
5. c. **microtubules**
6. c. **synapses**
7. d. **presynaptic; vesicle**
8. a. **axosomatic**
9. b. **structure; function**
10. c. **amino acids; monoamines**
11. b. **regulation of ion channels and alterations in gene expression**
12. c. **molecular, cellular, systems, behavioral**
13. a. **forebrain, midbrain, and hindbrain**
14. b. **nuclei; ganglia**
15. a. **long hierarchical neuronal connections**
16. c. **local circuits**

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17. b. **single circuit divergent circuitry**
18. c. **macroglia**
19. a. **cerebrospinal fluid.**
20. d. **blood-brain barrier**
21. a. **activity-dependent and reversible**
22. c. **molecular and behavioral events.**
23. b. **deductive; proof**
24. b. **falsification**

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