

Your Name Here _____

Kingsborough Community College of The City University of New York

Biology Department

Biology 11 Examination #4a - Introduction to the Nervous System

Multiple Choice: use your scantron and darken the space corresponding to the letter of the best answer.

1. The location where nerve impulses are transmitted from one neuron to the next is the
a. receptor b. neurilemma c. synapse c. effector e. axon
2. The depolarization of a neuron is caused by
a. K^+ diffusing into it.
b. Na^+ diffusing into it.
c. K^+ diffusing out of it
d. Na^+ diffusing out of it.
3. The velocity of nerve impulse conduction is greatest in nerve fibers that are _____ in diameter and _____.
a. large; myelinated
b. small; myelinated
c. large; unmyelinated
d. small; unmyelinated
4. Neurotransmitters move from the presynaptic to the postsynaptic membrane by
a. osmosis b. active transport c. filtration d. dialysis e. diffusion
5. The outermost coil of a Schwann cell that is wrapped around a peripheral nerve fiber is called the
a. neurilemma b. axon c. neurotransmitter d. ganglion e. nerve
6. Regeneration of nerve fibers is commonly observed in the

a. CNS only b. CNS and PNS c. PNS only d. only in the spinal cord e. only in the brain

7. Myelin of the CNS is produced by

a. astrocytes b. oligodendrocytes c. ependymal cells d. microglia e. Schwann cells

8. Pain impulses travel into the CNS from various parts of the body along _____ neural pathways.

a. afferent b. efferent c. ascending d. descending

9. The nerve impulse conduction occurring along myelinated nerve fibers is called

a. somatic transmission b. visceral conduction c. synaptic transmission d. saltatory conduction

10. A group of neuronal cell bodies (cytons) in the PNS is called a

a. nucleus b. tract c. ganglion d. nerve e. nerve fiber

11. The type of neuroglial cells that line the ventricles of the brain and produces cerebrospinal fluid are

a. astrocytes b. oligodendrocytes c. ependyma d. microglia e. Schwann cells

12. Sodium ions remain _____ in concentration outside neurons, and potassium ions remain _____ in concentration inside neurons due to the operation of _____.

a. high; high; sodium-potassium pump

b. high; low; sodium-potassium pump

c. low; high; sodium potassium pump

d. low high; sodium potassium pump

e. high; low; diffusion

13. The pathways used for the transport of materials between the cyton and the axon's terminal branches are the

a. neurofilaments b. neurilemma c. neurotubules d. myelin sheaths e. nodes of Ranvier

14. The blood-brain barrier of the CNS is believed to be due to the permeability properties of

a. astrocytes b. oligodendrocytes c. ependymal cells d. microglia e. Schwann cells

15. Dopamine, histamine, norepinephrine and serotonin are in the class of neurotransmitters called

- a. neuropeptides
- b. amino acids
- c. neuromodulators
- d. monoamines

16. Immune protection of the CNS is in part based on the activity of

- a. astrocytes
- b. oligodendrocytes
- c. ependymal cells
- d. microglia
- e. Schwann cells

17. Groups of cytons (somas) in the CNS are called

- a. nuclei
- b. ganglia
- c. tracts
- d. nerves
- e. nerve trunks

18. Suppose a neuron has 25,000 synapses on its dendrites and cell body, coming from other neurons. This would be an example of a

- a. convergent circuit
- b. feedback circuit
- c. divergent circuit
- d. parallel circuit

19. The myelin of the PNS is produced by

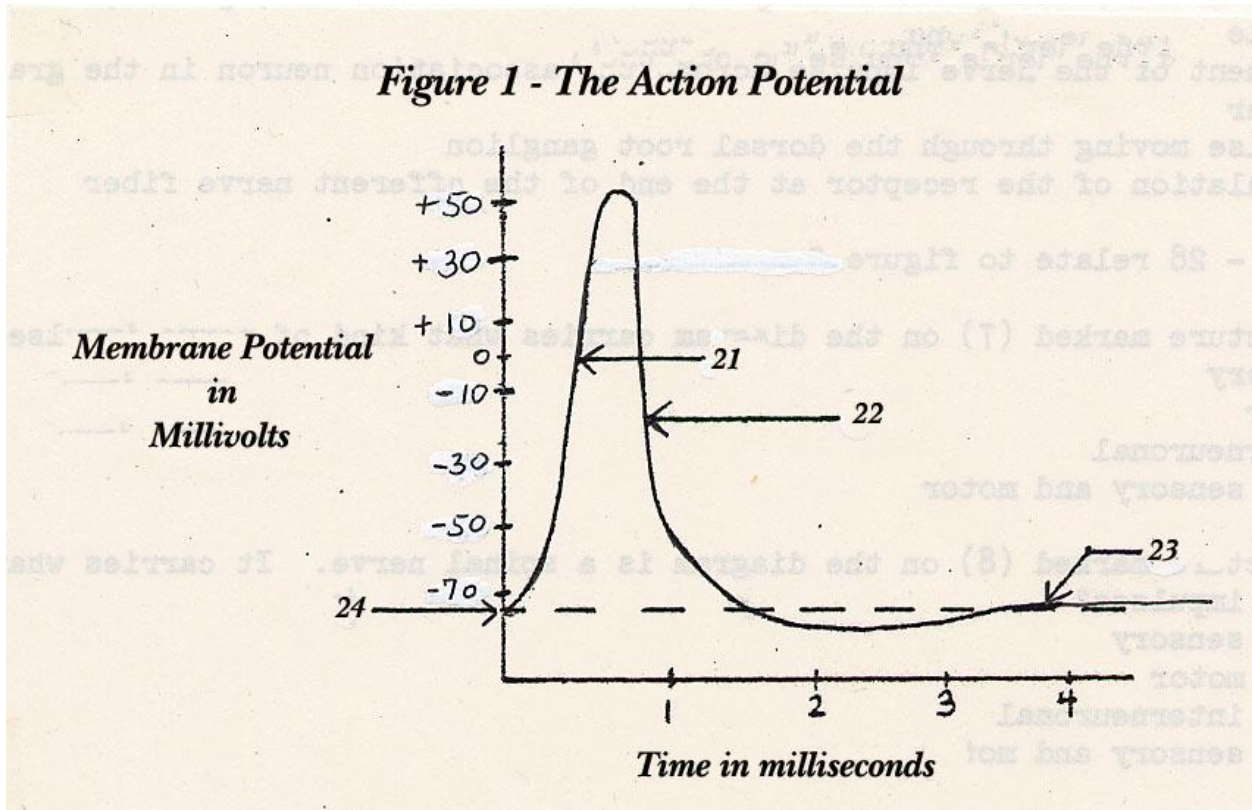
- a. astrocytes
- b. oligodendrocytes
- c. ependymal cells
- d. microglia
- e. Schwann cells

20. A disease resulting in the progressive loss of myelin from CNS nerve fibers is

- a. Huntington's disease
- b. myasthenia gravis
- c. Parkinson's disease
- d. multiple sclerosis

For all of the following questions, use your scantrons.

For questions 21-24 refer to fig.1.



21. The part of the graph numbered 21 represents _____ as _____ diffuses into the neuron.
- a. depolarization; K^+ b. depolarization; Na^+ c. repolarization; K^+ d. repolarization; Na^+
22. The part of the graph numbered 22 represents _____ as _____ diffuses out of the neuron.
- a. depolarization; K^+ b. depolarization; Na^+ c. repolarization; K^+ d. repolarization; Na^+
23. Number 23 on the graph represents
- a. the beginning of a new action potential
- b. the beginning of a new wave of repolarization
- c. the return of the membrane potential to its resting value
- d. the entrance of Na^+ into the neuron

24. Number 24 represents a time when

24. Number 24 represents a time when...

a. the neuron's intracellular fluid is high in K^+ , low in Na^+ , and the membrane potential is about -72 mv

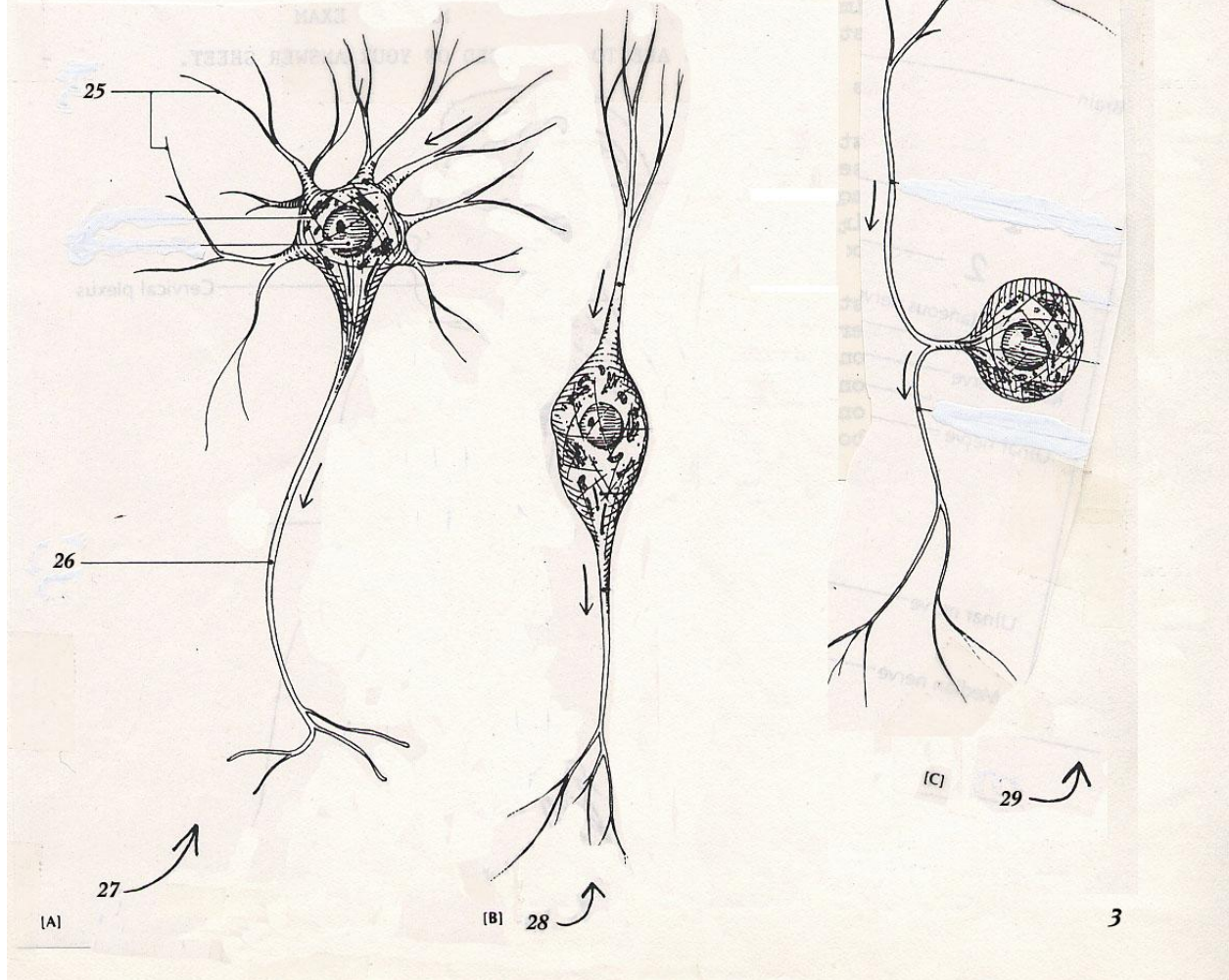
b. the neuron's intracellular fluid is high in Na^+ and low in K^+ and the membrane potential is about -72 mv

c. the neuron's intracellular fluid is high in K^+ , low in Na^+ , and the membrane potential is about +50 mv

d. the neuron's intracellular fluid is high in Na^+ and low in K^+ and the membrane potential is about +50 mv

Refer to Figure 2 to answer questions 25 - 29.

Figure 2 - Types of Neurons



For items 25 - 29 in Figure 2, choose the best answer from the following list and mark its corresponding letter on your scantron.

- a. This is a unipolar neuron.
- b. This is a bipolar neuron.
- c. This is a multipolar neuron.
- d. This is an axon.
- e. These are dendrites.