Exam

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) A change in the conditions in the synaptic terminal can influence the soma as a result of _____ axoplasmic transport.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

2) The _____ nervous system is composed of the brain and spinal cord.
   A) efferent
   B) afferent
   C) peripheral
   D) autonomic
   E) central

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

3) The _____ nervous system provides involuntary regulation of smooth muscle, cardiac muscle, and glandular activity.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

4) If acetylcholine (ACh) causes inhibition of a postsynaptic neuron, to what type of membrane channel did the ACh bind?
   A) voltage-regulated calcium channel
   B) chemically-regulated potassium channel
   C) voltage-regulated sodium channel
   D) mechanically-regulated channel
   E) chemically-regulated sodium channel

5) Which of the following is not a possible drug effect on synaptic function?
   A) block neurotransmitter binding to receptors
   B) interfere with neurotransmitter synthesis
   C) change the type of receptor found in the postsynaptic membrane
   D) interfere with neurotransmitter reuptake
   E) prevent neurotransmitter inactivation

6) Which of the following statements about the action potential is false?
   A) During the repolarization phase, sodium channels close and potassium channels open.
   B) Repolarization occurs as potassium ions leave the axon.
   C) In the after-hyperpolarization phase, membrane potential approaches the potassium equilibrium potential.
   D) During the depolarization phase, membrane potential becomes positive.
   E) The rapid depolarization phase is caused by the entry of potassium ions.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

7) Neuron cell bodies in the PNS are clustered together in masses called _____.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

8) _____ neurons form the afferent division of the PNS.
A) Sensory
B) Neural sensory
C) Visceral sensory
D) Somatic sensory
E) Motor

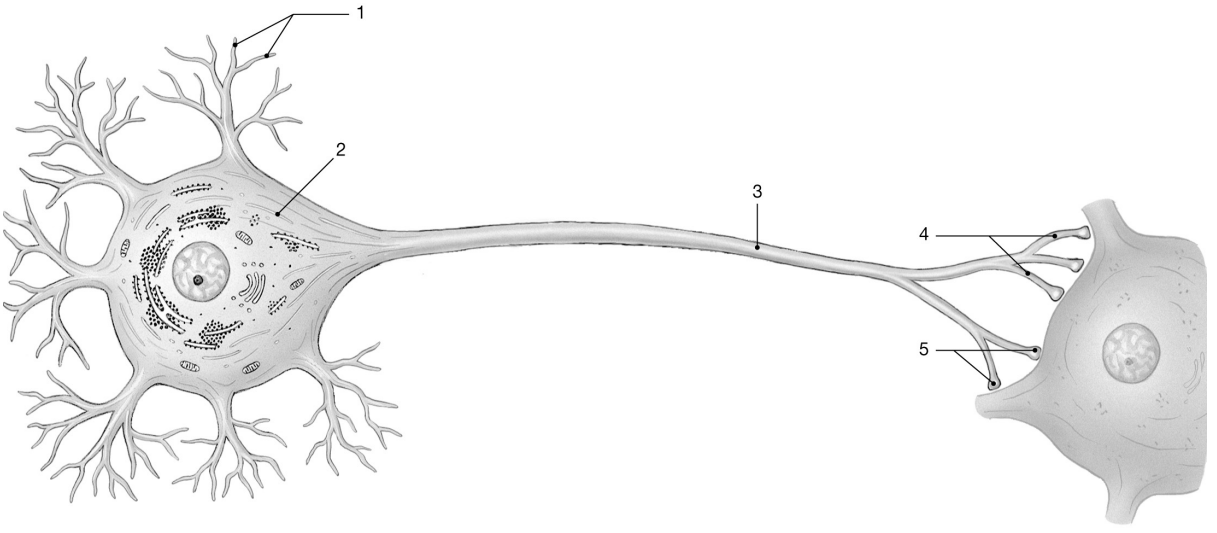

Figure 12-1 The Neuron
Use Figure 12-1 to answer the following questions:

9) On which structure do most neuron to neuron communications occur?
A) 4
B) 2
C) 1
D) 3
E) 5

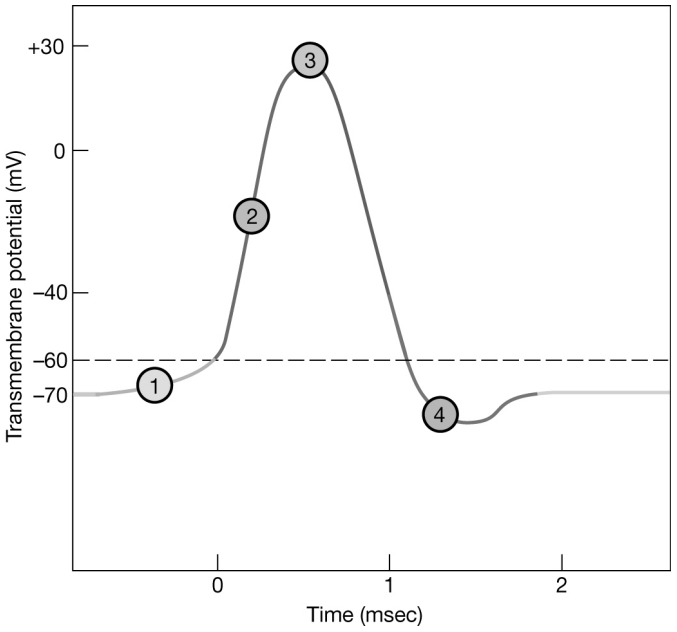

Figure 12-2 The Nerve Action Potential

Use Figure 12-2 to answer the following questions:

10) Which area of the graph shows when passive depolarization is occurring?
    A) 4
    B) 1
    C) 2
    D) 3

11) After a stroke, what type of glial cell accumulates within the affected brain region?
    A) oligodendrocytes
    B) microglia
    C) ependymal cells
    D) Schwann cells
    E) satellite cells

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

12) The _____ division of the peripheral nervous system brings sensory information to the central nervous system.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

13) What triggers the release of acetylcholine from a synaptic terminal?
    A) release of calcium ions from the synaptic vesicles
    B) synaptic vesicles fuse to dendrites
    C) diffusion of calcium ions into the synaptic terminal
    D) graded potentials in the synaptic terminal
    E) diffusion of sodium ions out of the synaptic terminal

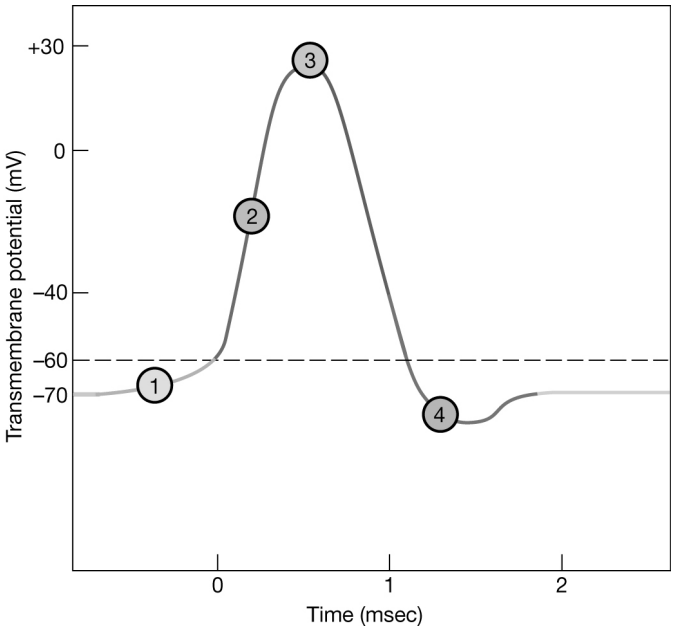

Figure 12-2 The Nerve Action Potential

Use Figure 12-2 to answer the following questions:

14) Which area of the graph shows when voltage-gated sodium are open?
A) 5
B) 3
C) 2
D) 4
E) 1

15) How would a chemical that prevents the opening of voltage-regulated Na+ channels affect the function of a neuron?
A) neuron will only be able to hyperpolarize
B) neuron will automatically and repeatedly produce graded potentials
C) action potentials will lack a repolarization phase
D) neuron will only be capable of producing graded potentials
E) neuron will depolarize more rapidly

16) _____ neurons are short, with a cell body between dendrite and axon, and occur in special sense organs.
A) Anaxonic
B) Unipolar
C) Motor
D) Bipolar
E) Multipolar

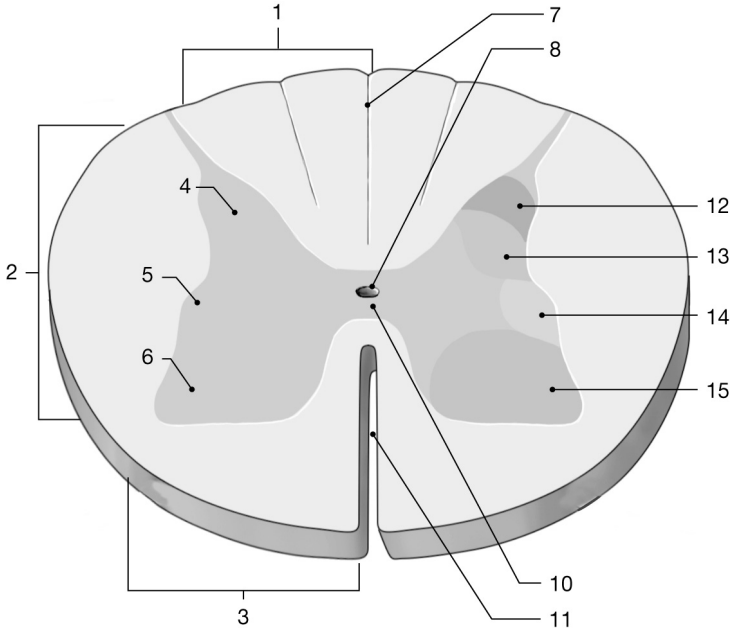

Figure 13-1 The Spinal Cord

Use Figure 13-1 to answer the following questions:

17) Identify the structure labeled "4."
A) posterior white column
B) posterior gray horn
C) dorsal gray ganglion
D) posterior gray column
E) anterior gray horn

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

18) The _____ separates the dura mater from the walls of the vertebral canal.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

19) Which of the following associations is incorrect?
A) 11 thoracic spinal nerves
B) 1 coccygeal spinal nerve
C) 8 cervical spinal nerves
D) 5 lumbar spinal nerves
E) 5 sacral spinal nerves

20) The ventral rami of spinal nerves C5 to T1 contribute fibers to the _____ plexus.
A) brachial
B) lumbar
C) thoracic
D) sacral
E) cervical

21) Cerebrospinal fluid flows within the
A) filum terminale.
B) pia mater.
C) dura mater.
D) subarachnoid space.
E) arachnoid mater.

22) Tina falls while climbing a tree and lands on her back. Her frightened parents take her to the emergency room, where she is examined. Her knee-jerk reflex is normal and she exhibits a plantar reflex (negative Babinski reflex). These results suggest that
A) Tina has injured one of her ascending nerve tracts.
B) Tina suffered no damage to her spinal cord.
C) Tina has a spinal injury in the cervical region.
D) Tina has a spinal injury in the lumbar region.
E) Tina has injured one of her descending nerve tracts.

23) The preganglionic fibers that connect a spinal nerve with an autonomic ganglion in the thoracic and lumbar region of the spinal cord and carries visceral motor fibers that are myelinated form the
A) white rami communicantes.
B) dorsal ramus.
C) dermatomes.
D) gray rami communicantes.
E) ventral ramus.

24) The complex, interwoven network formed by contributions from the ventral rami of neighboring spinal nerves is termed a(n)
A) tract.
B) dermatome.
C) plexus.
D) autonomic nerve.
E) lateral nerve.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

25) Reflexes that activate muscles on the same side of the body as the stimulus are called _____.

26) The neural "wiring" of a single reflex is called a(n) _____.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

27) In the condition _____, a virus infects dorsal root ganglia, causing a painful rash whose distribution corresponds to that of the affected sensory nerves as seen in their dermatomes.
A) chickenpox
B) Hodgkin's disease
C) neuronal damage
D) myasthenia gravis
E) shingles

28) If a person has a crush injury to the C_3-C_5 spinal segments, you would expect that he
A) might be unable to breathe on his own.
B) would have difficulty chewing and moving the tongue.
C) would be in a coma.
D) could walk without difficulty.
E) would have full range of motion in all extremities.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

29) The most complicated spinal reflexes are called _____.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

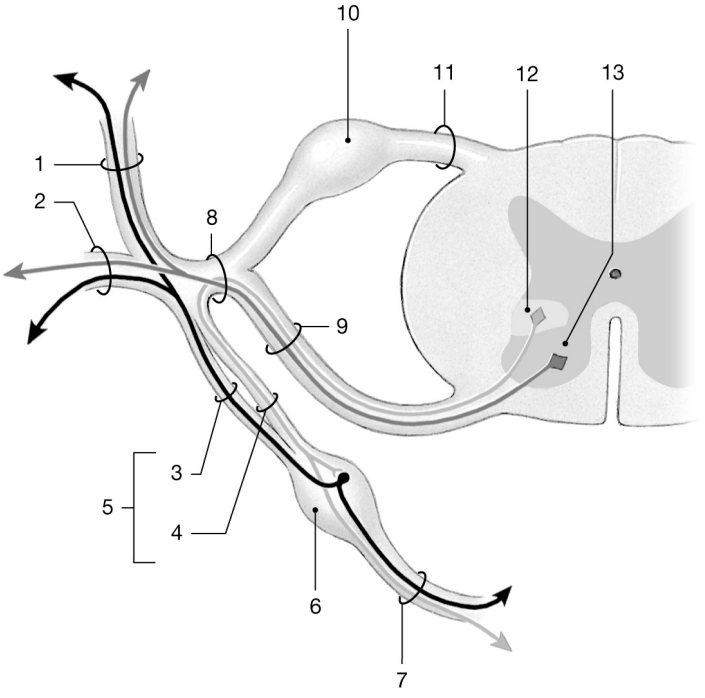

Figure 13-2 Spinal Nerves
Use Figure 13-2 to answer the following questions:

30) What is the function of the structure labeled "12"?
A) visceral motor control
B) sensory receptor for pain
C) visceral sensory input
D) somatic sensory input
E) somatic motor control

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

31) In _____, axon collaterals extend back toward the source of the impulse and further stimulate the earlier neurons.

32) A complex, interwoven network of nerves is called a(n) _____.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

33) Ependymal cells work to
A) adjust the composition of CSF.
B) surround the capillaries of the choroid plexus.
C) secrete CSF into the ventricles.
D) remove waste products from CSF.
E) All of the answers are correct.

34) The tectum of the mesencephalon contains the
A) red nuclei.
B) cerebral peduncles.
C) substantia nigra.
D) basal ganglia.
E) superior and inferior colliculi.

35) Cortical regions that interpret sensory information or coordinate motor responses are called _____ areas.
A) commissural
B) processing
C) association
D) somesthetic
E) sensory

36) _____ is a condition resulting from an inflammation of a facial nerve.
A) Bell's palsy
B) Addison's disease
C) Gout
D) Cerebral palsy
E) Hydrocephalus

37) The _____ is located at the tip of the tail of the caudate nucleus.
A) corpus striatum
B) putamen
C) claustrum
D) globus pallidus
E) amygdaloid body

38) Higher-order functions
A) involve complex interactions among areas of the cortex.
B) can be adjusted over time based on experience.
C) combine both conscious and unconscious information processing.
D) occur in the cerebrum.
E) All of the answers are correct.

39) The _____ provides the principal link between the nervous and endocrine systems.
A) cerebrum
B) hypothalamus
C) medulla oblongata
D) cerebellum
E) pons

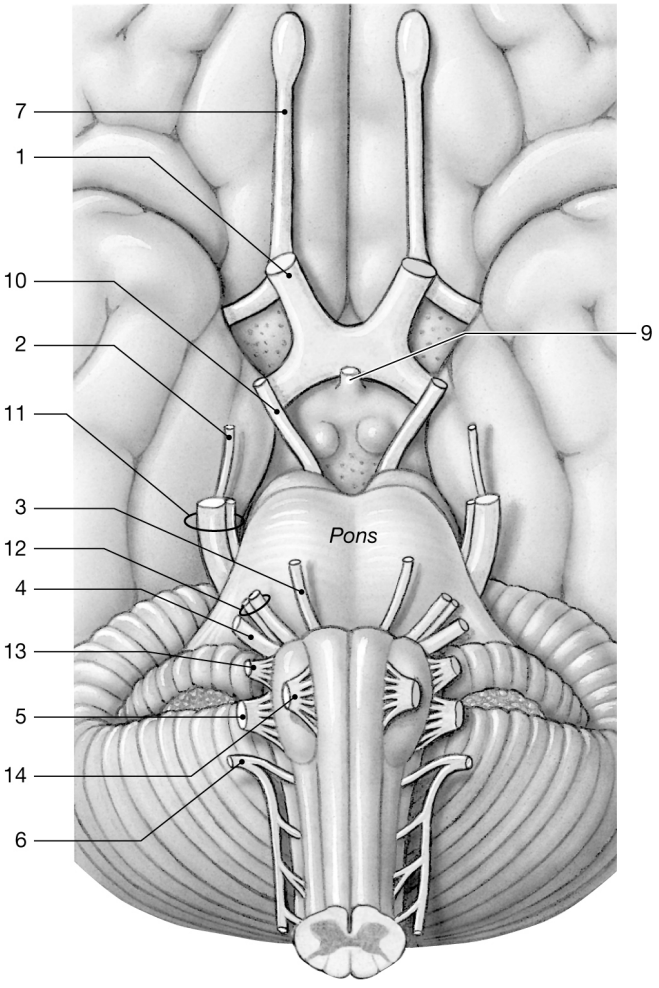

Figure 14-2 Cranial Nerves

Use Figure 14-2 to answer the following questions:

40) Identify the nerve labeled "3."
A) trigeminal
B) vagus
C) facial
D) trochlear
E) abducens

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

41) A patient develops a clot that blocks the blood supply to the right cerebral hemisphere. What signs and symptoms would you expect as a result of this blockage?

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

42) The adult human brain contains almost _____ of the body's neural tissue.
A) 68 percent
B) 97 percent
C) 35 percent
D) 25 percent
E) 15 percent

43) Which of the following help to protect the brain?
A) the blood-brain barrier
B) the CSF
C) the bones of the skull
D) the cranial meninges
E) All of the answers are correct.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

44) The medulla oblongata, pons, and midbrain comprise the _____.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

45) Overseeing the postural muscles of the body and making rapid adjustments to maintain balance and equilibrium are functions of the
A) cerebrum.
B) mesencephalon.
C) pons.
D) medulla oblongata.
E) cerebellum.

46) Droopy eyelids and double vision can result from injury to the _____ nerve.
A) oculomotor
B) trochlear
C) olfactory
D) abducens
E) optic

47) The tract that links the cerebellum with the pons is the
A) superior cerebellar peduncle.
B) obverse fibers.
C) longitudinal fibers.
D) inferior cerebellar peduncle.
E) middle cerebellar peduncle.

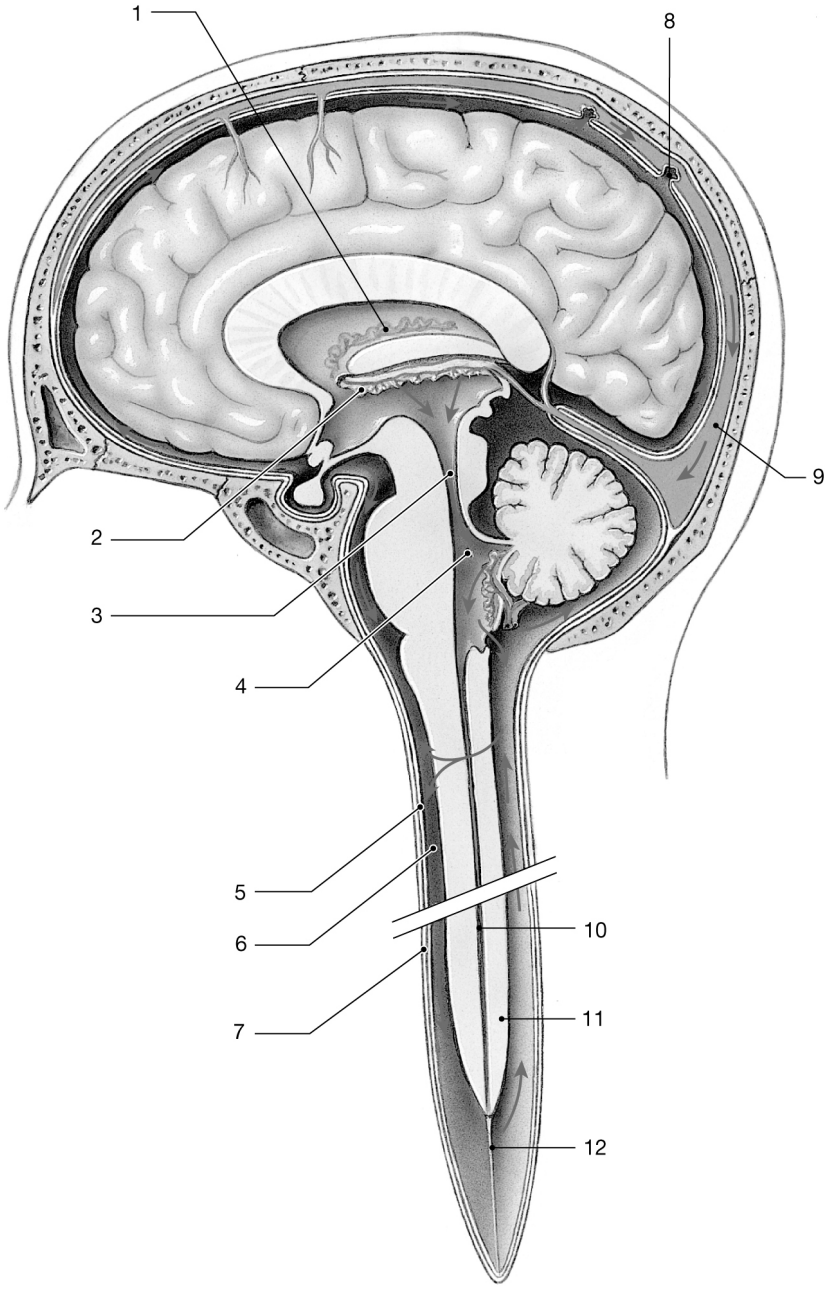

Figure 14-1 The Circulation of Cerebrospinal Fluid
Use Figure 14-1 to answer the following questions:

48) Identify the structure labeled "8."
A) arachnoid granulation
B) dura mater
C) ventricles
D) pia mater
E) corpus callosum

49) The cerebellum and pons develop from the
A) metencephalon.
B) telencephalon.
C) myelencephalon.
D) diencephalon.
E) mesencephalon.

50) Sensory information is processed and relayed to the cerebrum by the
A) midbrain.
B) medulla oblongata.
C) cerebellum.
D) pons.
E) thalamus.