

SECTION A

1. If inhibited, which brain system would allow previously filtered stimuli to enter our consciousness?
- Limbic system
 - Reticular activating system
 - Autonomic system
 - Both a and b
2. Compression of which nerve produces the sensation that your leg has "fallen asleep"?
- Sural nerve
 - Femoral nerve
 - Tibial nerve
 - Sciatic nerve
3. The _____ of the brain is the location of our conscious mind.
- cerebral cortex
 - Brodmann area
 - cerebellum
 - brain stem
4. Which structure of a neuron is capable of propagating an electrical impulse?
- Dendrites
 - Cell body
 - Perikaryon
 - Axon
5. Which of the following synapse types is the most rapid?
- Presynaptic synapse
 - None of these is more rapid than the others.
 - Chemical synapse
 - Electrical synapse
6. During the events involved in information transfer across a chemical synapse, which of the following steps would be interrupted by exposing a neuron to a calcium channel blocker?
- Depolarization of the presynaptic neuron
 - Depolarization of the postsynaptic membrane
 - Binding of neurotransmitters to the postsynaptic membrane
7. Reflex responses usually remove or oppose the stimulus. Therefore this type of reflexive response would be considered an example of _____.
a) A visceral reflex
b) A reverberating circuit
c) Negative feedback
d) Avoidance feedback
8. When considering the relationship between a structural classification and a functional classification of neurons, it can be said that _____.
a) all multipolar neurons are interneurons
b) unipolar neurons only function as motor neurons
c) all motor neurons are unipolar neurons
d) essentially all bipolar neurons are sensory neurons
9. Complete the following analogy: Electrical wire is to electrical insulating tape as peripheral neurons are to _____

- a) oligodendrocytes
- b) astrocytes
- c) ependymal cells
- d) Schwann cells

10. Each neuron in our bodies has a life span of _____.

- a) 10 months
- b) an average human life span
- c) 120 days
- d) 10 years

11. Following a motor vehicle accident, your patient has a suspected head injury. The patient is placed in the semi-Fowler's position. You notice a clear fluid running out of the patient's nose. You should test the fluid for a presence of what?

- a) blood
- b) glucose
- c) sodium
- d) potassium
- e) bacteria

12. Each of the following is a function of the nervous system, except

- a) providing sensation of the internal and external environments.
- b) integrating sensory information.
- c) coordinating voluntary and involuntary activities.
- d) directing activities that continue for extended periods, such as growth and pregnancy.
- e) regulating or controlling peripheral structures and systems.

13. The brain and spinal cord comprise the _____ nervous system.

- a) autonomic
- b) peripheral
- c) central
- d) efferent
- e) afferent

14. Voluntary control of skeletal muscles is provided by the _____ nervous system.

- a) sympathetic
- b) parasympathetic
- c) afferent
- d) somatic
- e) autonomic

15. The part of the peripheral nervous system that brings information to the central nervous system is

- a) motor.
- b) afferent.
- c) efferent.
- d) autonomic.
- e) somatic.

16. Which of the following is not a function of the neuroglia?

- a) support
- b) information processing
- c) secretion of cerebrospinal fluid
- d) isolation of neurons
- e) phagocytosis

17. Each of the following is a type of glial cell found in the central nervous system, except

- a) astrocytes.
 - b) satellite cells.
 - c) oligodendrocytes.
 - d) microglia.
 - e) ependymal cells.
18. *The largest and most numerous of the glial cells in the central nervous system are the*
- a) astrocytes.
 - b) satellite cells.
 - c) oligodendrocytes.
 - d) microglia.
 - e) ependymal cells.
19. *Functions of astrocytes include all of the following, except*
- a) maintaining the blood-brain barrier.
 - b) functioning in action potential transmission.
 - c) guiding neuron development.
 - d) performing repairs in damaged neural tissue.
 - e) creating a three-dimensional framework for the CNS.
20. *The myelin sheaths that surround the axons of some of the neurons in the CNS are formed by*
- a) astrocytes.
 - b) satellite cells.
 - c) oligodendrocytes.
 - d) microglia.
 - e) ependymal cells.
21. *Which of these sciences is considered "the oldest medical science"?*
- A. Egyptology
 - B. Molecular biology
 - C. Anatomy
 - D. Prostitution
22. *Why is the study of human anatomy and physiology critical to your everyday life?*
- A. Developing understanding of how the body works under normal conditions
 - B. It serves as a foundation for other life sciences
 - C. Useful in knowing what is happening when you or a friend is ill
 - D. All of the above are correct
23. *Anatomy is to ____ as physiology is to ____?*
- A. Cutting up : putting together
 - B. Structure : function
 - C. Function : structure
 - D. Medical terminology : medical tests
24. *How are many anatomical terms derived?*
- A. Latin and Greek
 - B. Spanish and French
 - C. Eponyms
 - D. A and C are correct

25. Why was International Anatomical Terminology written?

- A. We need to honor accomplishments of famous anatomists
- B. A repository of antiquated eponymous terms
- C. To serve as the universal standard of anatomical vocabulary
- D. A catalogue of famous medical schools

26. Which of these forms of anatomy is NOT paired with its definition?

- A. Regional anatomy/anatomical organization of specific areas of the body
- B. Systemic anatomy/anatomical organization of specific areas of the body
- C. Developmental anatomy/study from conception through maturity
- D. Pathological anatomy/study of anatomical features during illness

27. How do you effectively distinguish cytology from histology?

- A. Cytology studies structures of tissues/histology studies functions of tissues
- B. Cytology analyzes internal structures of individual cells/histology studies groups of specialized cells that work together
- C. Cytology uses light microscopy/histology uses electron microscopy
- D. Cytology studies disease states/histology studies only healthy tissues

28. Which specialty of physiology would be the profession of someone studying effects of heart disease?

- A. Pathological physiology
- B. Systemic physiology
- C. Organ physiology
- D. Cellular physiology

29. Which of these indicates the levels of organization from simplest to most complex?

- A. Electrical; chemical; neurotransmitter; response
- B. Chemical; cellular; tissue; organ; organ system; organismal
- C. Skeletal; muscular; cardiovascular; endocrine; nervous
- D. Tissue; chemical; cellular; organismal; organ system; organ

30. Why is it important to study each level of structural organization?

- A. The organization at each level determines structural characteristics of higher levels
- B. The organization at each level determines functions of higher levels
- C. A and B are correct
- D. It is not relevant to study all levels of organization

31. At which level of organization does a histologist investigate structures?

- A. molecular
- B. organ
- C. tissue
- D. cellular

32. Branches that sometimes occur along the length of an axon are called

- a) telodendria.

- b) synaptic knobs.
 c) collaterals.
 d) hillocks.
 e) synapses.
33. Axons terminate in a series of fine extensions known as
 a) telodendria.
 b) synaptic knobs.
 c) collaterals.
 d) hillocks.
 e) synapses.
34. Neurotransmitters are released from the
 a) telodendria.
 b) synaptic knobs.
 c) collaterals.
 d) hillock.
 e) synapse.
35. The site of intercellular communication between neurons is the
 a) telodendria.
 b) synaptic knob.
 c) collateral.
 d) hillock.
 e) synapse.
36. The rabies virus can travel to the CNS via
 a) axoplasmic transport.
 b) retrograde flow.
 c) blood vessels.
 d) connective tissue.
 e) CSF.
37. Neurons that are small and offer no anatomical clues to distinguish axons from dendrites are called
 a) anaxonic.
 b) unipolar.
 c) bipolar.
 d) tripolar.
 e) multipolar.
38. Neurons in which dendritic and axonal processes are continuous and the soma lies off to one side are called
 a) anaxonic.
 b) unipolar.
 c) bipolar.
 d) tripolar.
 e) multipolar.
39. Neurons that have one axon and one dendrite are called
 a) anaxonic.
 b) unipolar.
 c) bipolar.
 d) tripolar.
 e) multipolar.
40. Neurons that have several dendrites and a single axon are called

- a) anaxonic.
 b) unipolar.
 c) bipolar.
 d) tripolar.
 e) multipolar.
41. Which of these examples describe extrinsic regulation?
 A. Results from activities of the nervous or endocrine system
 B. Adjusts its activities automatically in response to environmental change
 C. Oxygen levels decline in a tissue and cells release chemicals to dilate local blood vessels
 D. B and C
42. Why is homeostatic regulation important to an organism?
 A. Regulation allows individual organ systems to gain total control of the body.
 B. Individual cells tolerate large ranges of conditions when regulated properly.
 C. Physiological systems can function normally only under carefully controlled conditions.
 D. Regulation provides a good framework for studying human physiology.
43. A receptor, a control center and an effector are the three parts of a homeostatic regulatory mechanism. Which of these describes the respective functions of each component?
 A. Receives and processes information; a cell or organ that responds to commands; a sensor receptive to stimulus
 B. A sensor receptive to stimulus; receives and processes information; a cell or organ that responds to commands
 C. Activity that opposes or enhances a stimulus; receives information; keeps characteristics of internal environment within certain limits
 D. all of the above
44. What is/are goals and functions of a negative feedback system?
 A. Providing long-term control over the body's internal conditions
 B. Keeping conditions within a normal range
 C. Adjusting the "set point" for body temperature based upon level of activity
 D. all of the above
45. What happens to the body when homeostasis breaks down?
 A. disease
 B. organ systems malfunction
 C. death
 D. all of the above
46. What is/are goals and functions of a positive feedback system?
 A. An initial stimulus produces a response that exaggerates the original change in conditions
 B. Keeping conditions within a normal range
 C. A stressful process must be completed before homeostasis can be restored
 D. A and C are correct
47. Why is positive feedback helpful in blood clotting, but unsuitable for the regulation of body temperature?
 A. Positive feedback accelerates the clotting process, but would cause temperature to rise out of control
 B. Positive feedback is not reliable
 C. Positive feedback works only in life threatening situations

- D. Positive feedback would cause temperature to decrease; negative feedback would cause dynamic equilibrium to occur in blood clotting
48. When the body is in correct anatomical position, what does that look like?
- The terms left and right refer to the left and right sides of the observer
 - Hands are at the sides, dorsum of the hand facing forward, legs apart, head slightly to one side
 - Hands are at the sides, palms facing forward, feet together, eyes straight ahead
 - Person must be lying down
49. Bruce has gallbladder problems. Where does Bruce have pain?
- Epigastric region
 - Umbilical region
 - Right lumbar region
 - Right upper quadrant
50. The head is ____ to the umbilicus and the skeletal muscles are ____ to the bones.
- Posterior/lateral
 - Superior/superficial
 - Inferior/deep
 - Cranial/distal
51. When pressure is applied to neural tissue,
- action potentials are generated constantly.
 - glial cells degenerate.
 - neurons divide.
 - there is an increase in the available blood supply.
 - the membrane becomes inexcitable.
52. How does blocking the ability for retrograde flow in an axon affect the activity of a neuron?
- The neuron is unable to produce neurotransmitters.
 - The neuron is unable to produce action potentials.
 - The neuron is unable to depolarize when stimulated.
 - The soma is unable to export products to the synaptic knobs.
 - The soma is unable to respond to changes in the distal end of the axon.
53. Many medications introduced into the bloodstream cannot directly affect the neurons of the CNS because
- the lining of the capillaries in the CNS forms a blood-brain barrier.
 - oligodendrocytes form a continuous myelin sheath around the axons.
 - The neurolemma is impermeable to all types of molecules.
 - the ependymal cells restrict the flow of interstitial fluid between the capillaries and the neurons.
 - glial cells (like the astrocytes) form a physical barrier between the blood vessels and the neuron's membrane.
54. Peripheral nerve palsies are to _____ as axons are to _____.
- peripheral neurology; bundles
 - pathology; nephron
 - peripheral neuropathies; fascicles
 - peripheral neurons; fascicles
 - none of the above
55. In the condition _____, a virus infects dorsal root ganglia, causing a painful rash whose distribution corresponds to that of the affected sensory nerve.

- a) shingles
- b) chickenpox
- c) myasthenia gravis
- d) neuronal damage
- e) Hodgkin's disease

56. If the dorsal root of a spinal nerve is severed,

- a) motor control of skeletal muscles would be impaired.
- b) motor control of visceral organs would be impaired.
- c) the brain would not be able to communicate with that level of the spinal cord.
- d) incoming sensory information would be disrupted.
- e) the spinal cord would not be able to process information at that level.

57. In diagnosing bacterial and viral infections of the nervous system, samples of cerebrospinal fluid are extracted for analysis. This procedure would logically withdraw fluid for analysis from the

- a) dura mater.
- b) arachnoid mater.
- c) epidural space.
- d) subarachnoid space.
- e) cerebral ventricles.

58. Bill contracts a viral disease that destroys some of the cells in the anterior gray horns in the lumbar region of his spinal cord. As a result of the disease which of the following would you expect?

- a) problems with walking
- b) lack of sensation from his right leg
- c) inability to breathe
- d) lack of feeling in his hands
- e) an inability to move his arm

59. Mary is in an automobile accident and injures her spinal cord. She has lost feeling in her right hand and her doctor tells her that it is the result of swelling compressing a portion of her spinal cord. Which part of her cord is likely to be compressed?

- a) an ascending tract
- b) a descending tract
- c) the anterior gray horns
- d) the gray commissure
- e) the anterior white commissure

60. Cells of the _____ line the ventricle.

- a) epididymis
- b) ependyma
- c) erythrocytes
- d) both A and B
- e) both B and C

61. The sodium-potassium exchange pump

- a) must re-establish ion concentrations after each action potential.
- b) transports sodium ions into the cell during depolarization.
- c) transports potassium ions out of the cell during repolarization.
- d) moves sodium and potassium in the direction of their chemical gradients.
- e) requires ATP to function.

62. The all-or-none principle states that

- a) all stimuli will produce identical action potentials.
- b) all stimuli great enough to bring the membrane to threshold will produce identical action potentials.
- c) the greater the magnitude of the stimuli, the greater the intensity of the action potential.

- d) only sensory stimuli can activate action potentials.
- e) only motor stimuli can activate action potentials.

63. During continuous conduction,

- a) action potentials move in all directions along an axon.
- b) action potentials occur at successive nodes along the length of the stimulated axon.
- c) local currents depolarize adjacent areas of membrane so that action potentials continue to form along the membrane.
- d) action potentials produce a local current that is strong enough to spread along the length of the axon.
- e) local potentials produce a continuous outward flow of potassium ions.

64. During saltatory conduction,

- a) action potentials move in all directions along an axon.
- b) action potentials occur at successive nodes along the length of the stimulated axon.
- c) local currents depolarize adjacent areas of membrane so that action potentials continue to form along the membrane.
- d) action potentials produce a local current that is strong enough to spread along the length of the axon.
- e) local potentials produce a continuous outward flow of potassium ions.

65. Which of the following does not influence the time necessary for a nerve impulse to be transmitted?

- a) length of the axon
- b) presence or absence of a myelin sheath
- c) diameter of the axon
- d) presence or absence of nodes
- e) whether the axon is sensory or motor

66. Which of these examples describe extrinsic regulation?

- A. Results from activities of the nervous or endocrine system
- B. Adjusts its activities automatically in response to environmental change
- C. Oxygen levels decline in a tissue and cells release chemicals to dilate local blood vessels
- D. B and C

67. Why is homeostatic regulation important to an organism?

- a) Regulation allows individual organ systems to gain total control of the body.
- b) Individual cells tolerate large ranges of conditions when regulated properly.
- c) Physiological systems can function normally only under carefully controlled conditions.
- d) Regulation provides a good framework for studying human physiology.

68. A receptor, a control center and an effector are the three parts of a homeostatic regulatory mechanism. Which of these describes the respective functions of each component?

- a) Receives and processes information; a cell or organ that responds to commands; a sensor receptive to stimulus
- b) A sensor receptive to stimulus; receives and processes information; a cell or organ that responds to commands
- c) Activity that opposes or enhances a stimulus; receives information; keeps characteristics of internal environment within certain limits
- d) all of the above

69. What is/are goals and functions of a negative feedback system?

- a) Providing long-term control over the body's internal conditions
- b) Keeping conditions within a normal range
- c) Adjusting the "set point" for body temperature based upon level of activity
- d) all of the above

70. What happens to the body when homeostasis breaks down?

- a) disease
- b) organ systems malfunction
- c) death
- d) all of the above

71. What is/are goals and functions of a positive feedback system?

- a) An initial stimulus produces a response that exaggerates the original change in conditions
- b) Keeping conditions within a normal range
- c) A stressful process must be completed before homeostasis can be restored
- d) A and C are correct

72. Why is positive feedback helpful in blood clotting, but unsuitable for the regulation of body temperature?

- a) Positive feedback accelerates the clotting process, but would cause temperature to rise out of control
- b) Positive feedback is not reliable
- c) Positive feedback works only in life threatening situations
- d) Positive feedback would cause temperature to decrease; negative feedback would cause dynamic equilibrium to occur in blood clotting

73. When the body is in correct anatomical position, what does that look like?

- a) The terms left and right refer to the left and right sides of the observer
- b) Hands are at the sides, dorsum of the hand facing forward, legs apart, head slightly to one side
- c) Hands are at the sides, palms facing forward, feet together, eyes straight ahead
- d) Person must be lying down

74. Bruce has gallbladder problems. Where does Bruce have pain?

- a) Epigastric region
- b) Umbilical region
- c) Right lumbar region
- d) Right upper quadrant

75. The head is ____ to the umbilicus and the skeletal muscles are ____ to the bones.

- a) Posterior/lateral
- b) Superior/superficial
- c) Inferior/deep
- d) Cranial/distal

76. Which of the following help to protect the brain?

- a) the blood-brain barrier.
- b) the bones of the cranium.
- c) the cranial meninges.
- d) the CSF
- e) all of the above

77. Which of the following brain imaging techniques uses radioactive-labeled glucose?

- a) Functional magnetic resonance imaging (MRI)
- b) Electroencephalography (EEG)
- c) Positive emission tomography (PET)
- d) Horseradish peroxidase (HRP)

78. Which cranial nerve carries sensory and motor signals between the brain and many internal organs?

- a) II (Optic)
- b) X (Vagus)

- c) V (Trigeminal)
- d) VII (Vestibulocochlear)
- e) XII (Hypoglossal)

79. Which of the following structures provide pressure, pain, and temperature sensations?

- a) sympathetic division of the autonomic nervous system
- b) somatic sensory receptors
- c) special sensory receptors
- d) visceral sensory receptors

80. Regarding neurological disorders:

- a) loss of feeling, numbness, or tingling sensations may occur after damage to efferent pathways in the central nervous system.
- b) tension headaches do not accompany severe depression or anxiety.
- c) paresthesias may be temporary or permanent.
- d) muscle weakness does not actually have an underlying neurological basis.

81. Preganglionic sympathetic fibers exit the spinal cord via the _____ and pass through the _____ to enter the _____.

- a) dorsal root; lateral horns; vagal trunk
- b) rami communicantes; sympathetic trunk ganglia; ventral root
- c) lateral horns; posterior vagal trunk; plexus
- d) ventral root; rami communicantes; sympathetic trunk ganglia

82. In general, sympathetic innervation of visceral organs via the lumbar and sacral splanchnic nerves inhibits the activity of these organs. This is logical because _____.

- a) sympathetic input primes the body to enter a resting state
- b) sympathetic activity primes the body for physical activity and temporarily shuts down noncritical body activities
- c) sympathetic input is always inhibitory
- d) parasympathetic innervation is lacking from this area

83. The actual site of information processing in the nervous system is the

- a) chemical synapse.
- b) electrical synapse.
- c) axonal hillock.
- d) dendritic membrane.
- e) synaptic knob.

84. EPSPs (excitatory postsynaptic potentials) occur when

- a) more potassium ions than usual leak out of a cell.
- b) more calcium ions than usual leak out of a cell.
- c) chloride ions enter a cell.
- d) sodium channels are opened.
- e) hyperpolarizations occur.

85. IPSPs (inhibitory postsynaptic potentials)

- a) result in local depolarizations.
- b) result in local hyperpolarizations.
- c) increase membrane permeability to sodium ions.
- d) prevent the efflux of potassium ions.
- e) prevent the efflux of calcium ions.

86. When a second EPSP arrives at a single synapse before the effects of the first have disappeared, what occurs?

- a) spatial summation
- b) temporal summation

- c) inhibition of the impulse
 d) hyperpolarization
 e) decrease in speed of impulse transmission
87. Which of the following is not an effect of a rise in pH?
 a) Nervous system becomes more excitable.
 b) Individual neurons are facilitated.
 c) Neurons begin to generate action potentials spontaneously.
 d) Inhibitory neurotransmitters are produced in excess.
 e) both C and D
88. Neurons normally derive ATP solely through
 a) aerobic glycolysis.
 b) anaerobic glycolysis.
 c) formation of creatine phosphate.
 d) use of stored glycogen.
 e) catabolism of DNA.
89. Interneurons
 a) are found only in the central nervous system.
 b) carry only sensory impulses.
 c) carry only motor impulses.
 d) only connect motor neurons to other motor neurons.
 e) are found between neurons and their effectors.
90. Which of these examples describe extrinsic regulation?
 a) Results from activities of the nervous or endocrine system
 b) Adjusts its activities automatically in response to environmental change
 c) Oxygen levels decline in a tissue and cells release chemicals to dilate local blood vessels
 d) B and C
91. Why is homeostatic regulation important to an organism?
 a) Regulation allows individual organ systems to gain total control of the body.
 b) Individual cells tolerate large ranges of conditions when regulated properly.
 c) Physiological systems can function normally only under carefully controlled conditions.
 d) Regulation provides a good framework for studying human physiology.
92. A receptor, a control center and an effector are the three parts of a homeostatic regulatory mechanism. Which of these describes the respective functions of each component?
 a) Receives and processes information; a cell or organ that responds to commands; a sensor receptive to stimulus
 b) A sensor receptive to stimulus; receives and processes information; a cell or organ that responds to commands
 c) Activity that opposes or enhances a stimulus; receives information; keeps characteristics of internal environment within certain limits
 d) all of the above
93. What is/are goals and functions of a negative feedback system?
 a) Providing long-term control over the body's internal conditions
 b) Keeping conditions within a normal range
 c) Adjusting the "set point" for body temperature based upon level of activity
 d) all of the above
94. What happens to the body when homeostasis breaks down?
 a) disease
 b) organ systems malfunction

- c) death
d) all of the above
95. What is/are goals and functions of a positive feedback system?
 a) An initial stimulus produces a response that exaggerates the original change in conditions
 b) Keeping conditions within a normal range
 c) A stressful process must be completed before homeostasis can be restored
 d) A and C are correct
96. Why is positive feedback helpful in blood clotting, but unsuitable for the regulation of body temperature?
 a) Positive feedback accelerates the clotting process, but would cause temperature to rise out of control
 b) Positive feedback is not reliable
 c) Positive feedback works only in life threatening situations
 d) Positive feedback would cause temperature to decrease; negative feedback would cause dynamic equilibrium to occur in blood clotting
97. When the body is in correct anatomical position, what does that look like?
 a) The terms left and right refer to the left and right sides of the observer
 b) Hands are at the sides, dorsum of the hand facing forward, legs apart, head slightly to one side
 c) Hands are at the sides, palms facing forward, feet together, eyes straight ahead
 d) Person must be lying down
98. Bruce has gallbladder problems. Where does Bruce have pain?
 a) Epigastric region
 b) Umbilical region
 c) Right lumbar region
 d) Right upper quadrant
99. The head is ____ to the umbilicus and the skeletal muscles are ____ to the bones.
 a) Posterior/lateral
 b) Superior/superficial
 c) Inferior/deep
 d) Cranial/distal
100. The knee is ____ to the ankle and ____ to the thigh.
 A. Proximal/distal
 B. Medial/inferior
 C. Medial/distal
 D. Lateral/inferior
101. Complex protein assemblies traversing the lipid bilayer of the plasma membrane are termed ____.
 a) connexons.
 b) ribosomes.
 c) desmosomes.
 d) endoplasmic reticula.
 e) peroxisomes.
102. Which type of section would separate/divide the body down the midline between the eyes?
 A. transverse section
 B. coronal section
 C. parasagittal section
 D. midsagittal section

103. Contents of the thoracic cavity include the ____ and is further subdivided into the ____ cavities.

- A. Brain and spinal cord/cranial and vertebral
- B. Heart and lungs/pleural and pericardial
- C. Liver and stomach/abdominal and pelvic
- D. B and C are correct

104. The ____ peritoneum surrounds organs and the ____ peritoneum lines the _____. This membrane functions to _____.

- A. Dural/parietal/cranial cavity/separate brain and spinal cord
- B. Pleural/pericardial/thoracic cavity/protect internal structures
- C. Visceral/parietal/abdominopelvic cavity/allow organs to slide across each other
- D. Parietal/visceral/thoracic cavity/allow expansion of organs

105. If a surgeon makes an incision just inferior to the diaphragm, which body cavity will be opened?

- A. the abdominopelvic cavity
- B. the pleural cavity
- C. the dorsal cavity
- D. the pericardial cavity

106. How is it possible for two samples of hydrogen to contain the same number of atoms, yet one sample weighs more than the other?

- A. One sample contains fewer electrons, decreasing weight.
- B. One sample has more bonds.
- C. One sample contains more of hydrogen's heavier isotope(s).
- D. One sample includes more protons, increasing weight.

107. What is a mole and why is it useful to describe elements in terms of moles?

- A. 6.023×10^{23} /easier to keep track of relative numbers of atoms in chemical samples
- B. Is a quantity with a weight in grams equal to that element's atomic weight/because one mole of a given element always contains the same number of atoms as one mole of any other element
- C. The total number of neutrons and protons in the nucleus/nuclei sometimes emit subatomic particles or radiation in measurable amounts
- D. A and B are correct

108. Which kind of bond holds atoms in a water molecule together?; and what attracts water molecules to one another?

- A. Polar covalent bonds; hydrogen bonds
- B. Ionic bonds; charge interactions
- C. Hydrogen bonds; charge interactions
- D. Covalent bonds; hydrogen bonds

109. Both oxygen and neon are gases at room temperature. Oxygen combines readily with other elements, but neon does not. Why?

- A. Neon has 8 electrons in its valence shell, oxygen has only 6.
- B. Neon cannot undergo bonding due to its polarity.
- C. Neon is exergonic.
- D. Neon's molecular weight is too low to allow bonding.

110. The chemical shorthand used to describe chemical compounds and reactions effectively is known as _____.

- A. Molecular formula
- B. Chemical notation

- C. Molecular weight
- D. Mass number

111. Which of these notations describes dehydration synthesis and why?

- A. A-B-C-H + HO-DE → A-B-C-D-E + H₂O; formation of a complex molecule by removal of a water molecule
- B. A-B-C-D-E + H₂O → A-B-C-H + HO-D-E; a chemical bond was broken through the addition of a water molecule
- C. AB → A + B; a molecule is broken into smaller fragments
- D. AB + CD → AD + CB; molecules are shuffled around to produce a new product

112. In cells, glucose, a six-carbon molecule, is converted into two three-carbon molecules by a reaction that releases energy. How would you classify this reaction?

- A. Endergonic
- B. Exergonic
- C. Decomposition
- D. B and C are correct

113. _____ neurons form the afferent division of the PNS.

- a) Visceral sensory
- b) Sensory
- c) Neural sensory
- d) Somatic sensory
- e) none of the above

114. _____ are the most numerous type of neuron.

- a) Sensory neurons
- b) Motor neurons
- c) Multipolar neurons
- d) Bipolar neurons
- e) Interneurons

115. Which of the following are types of neuroglia?

- a) ependymal cells
- b) microglia
- c) astrocytes
- d) oligodendrocytes
- e) all of the above

116. _____ account for roughly half of the volume of the nervous system.

- a) Axons
- b) Dendrites
- c) Neuroglia
- d) Synapses
- e) Efferent fibers

117. Following a motor vehicle accident, your patient has a suspected head injury. The patient is placed in the semi-Fowler's position. You notice a clear fluid running out of the patient's nose. You should test the fluid for a presence of what?

- a) sodium
- b) blood
- c) glucose
- d) potassium
- e) bacteria

118. All of the following are functions of cerebral spinal fluid, except that it

- a) surrounds the brain and spinal cord.
- b) acts as a cushion for the brain.
- c) transports nutrients.
- d) circulates continuously.
- e) transports oxygen.

119. The function of the astrocytes in the CNS includes which of the following?

- a) controlling the interstitial environment
- b) guiding neuron development
- c) maintaining the blood-brain barrier
- d) repairing damaged neural tissue
- e) all of the above

120. The largest and most numerous neuroglia in the CNS are the

- a) astrocytes.
- b) ependymal cells.
- c) microglia.
- d) oligodendrocytes.
- e) none of the above

121. The least numerous neuroglia of the CNS are the

- a) astrocytes.
- b) ependymal cells.
- c) microglia.
- d) oligodendrocytes.
- e) none of the above

122. Why are enzymes needed in our cells?

- A. To promote chemical reactions
- B. For chemical reactions to proceed under conditions compatible with life
- C. To lower activation energy requirements
- D. All of the above

123. Which property of water accounts for the cooling effect of perspiration?

- A. Solubility; solutes easily break up in water
- B. Reactivity; hydrolysis causes salt crystals to form on the skin
- C. High heat capacity; water carries away heat when it changes from a liquid to a gas
- D. Lubrication; there is little friction between molecules

124. Wine has a pH of 3. This means that compared to tomatoes that have a pH of 4....

- A. Wine is closer to neutral pH than tomatoes.
- B. The concentration of hydrogen ions is 10 times as great in the wine as in a tomato and both are acidic.
- C. The concentration of hydroxide ions is ten times as great in the tomato as in the wine and both are basic.
- D. The concentration of hydrogen ions is 100 times as great in the wine as the tomato and both are acidic.

125. How does an antacid help decrease stomach discomfort?

- A. By reducing buffering capacity of the stomach
- B. By decreasing pH of stomach contents
- C. By reacting a weak acid with a stronger one
- D. By neutralizing acid using a weak base

126. Why does a solution of table salt conduct electricity, but a sugar solution does not?

- A. Electrical conductivity requires ions.
- B. Sugar forms a colloid, salt forms a suspension.
- C. Electricity is absorbed by glucose molecules.
- D. Table salt is hydrophobic, sugar is hydrophilic.

127. A food contains organic molecules with the elements C, H, and O in a ratio of 1:2:1. What class of compounds do these molecules belong to, and what are their major functions in the body?

- A. Lipids; energy source
- B. Proteins; support and movement
- C. Nucleic acids; determining inherited characteristics
- D. Carbohydrates; energy source

128. Which lipids would you find in human cell membranes?

- A. Cholesterol
- B. Glycolipids
- C. Phospholipids
- D. All of the above

129. Why is cholesterol important in the human body?

- A. It transforms into prostaglandins, which are released by damaged tissues causing pain.
- B. Cells need it to maintain their membranes and for growth and division.
- C. It is an essential component of eicosanoids
- D. It is the only site of storage for lipid soluble vitamins.

130. What are structural and functional similarities of phospholipids and glycolipids?

- A. Their hydrocarbon tails are hydrophobic.
- B. They help form and maintain intracellular structures.
- C. They are primarily composed of phosphate and glycogen, respectively.
- D. A and B are correct

131. When two monosaccharides undergo a dehydration synthesis reaction, which type of molecule is formed?

- A. Polypeptide
- B. Disaccharide
- C. Eicosanoid
- D. Polysaccharide

132. The thin partition that separates the first and second ventricles is the

- a) falx cerebri.
- b) septum pellucidum.
- c) septum insula.
- d) interventricular foramina.
- e) cerebral aqueduct.

133. The third and fourth ventricles are linked by the

- a) central canal.

- b) tentorium cerebelli.
- c) mesencephalic aqueduct.
- d) interventricular foramina.
- e) medulla oblongata.

134. What structure is highly vascular and closely adheres to the surface of the brain?

- a) pia mater
- b) arachnoid
- c) dura mater
- d) cranial plexus
- e) choroid plexus

135. Which of the following is not a function of cerebrospinal fluid?

- a) provides cushioning for delicate neural tissues
- b) provides buoyant support for the brain
- c) acts as a transport medium for nutrients
- d) provides a medium for nerve impulse transmission
- e) acts as a transport medium for chemical messengers

136. 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) cerebellum.
- d) pons.
- e) medulla.

137. The white matter of the cerebellum forms the

- a) flocculonodular lobe.
- b) arbor vitae.
- c) folia.
- d) vermis.
- e) pyramid.

138. The arbor vitae refers to _____.

- a) cerebellar gray matter
- b) cerebellar white matter
- c) the pleatlike convolutions of the cerebellum
- d) flocculonodular nodes

139. The brain stem consists of the _____.

- a) cerebrum, pons, midbrain, and medulla
- b) midbrain, medulla, and pons
- c) pons, medulla, cerebellum, and midbrain
- d) midbrain only

140. The region of the brain that is involved in conscious thought and intellectual function as well as processing somatic sensory and motor information is the _____.

- a) medulla.
- b) pons.
- c) mesencephalon.
- d) diencephalon.
- e) cerebrum.

141. The corpus callosum is composed of _____.

- a) arcuate fibers.
- b) longitudinal fasciculi.
- c) association fibers.
- d) commissural fibers.
- e) projection fibers.

142. Proteins are chains of which small organic molecules?

- A. Saccharides
- B. Fatty acids
- C. Amino acids
- D. Nucleic acids

143. Which level of protein structure would be affected by an agent that breaks hydrogen bonds?

- A. The primary level of protein structure
- B. The secondary level of protein structure
- C. The tertiary level of protein structure
- D. The protein structure would NOT be affected by this agent

144. How does boiling a protein affect its structural and functional properties?

- A. Heat denatures the protein, causing unfolding.
- B. Heat causes the formation of additional quaternary structure.
- C. Heating rearranges the primary structure of the protein.
- D. Heat alters the radical groups on the amino acids.

145. Why is it significant that keratin and collagen are fibrous proteins and myoglobin and hemoglobin are globular proteins?

- A. Fibrous proteins are tough and insoluble in water; they play structural roles
- B. Fibrous proteins are only functional when they are in solution
- C. Globular proteins readily enter aqueous solutions and function only when they are in solution
- D. A and C are correct

146. How might a change in an enzyme's active site affect its functions?

- A. Increased activity due to a better fit with the substrate
- B. Decreased activity due to a poor substrate fit
- C. Inhibited activity due to no substrate fit
- D. All of the above

147. A large organic molecule composed of the sugar ribose, nitrogenous bases, and phosphate groups is which kind of nucleic acid?

- A. DNA
- B. ATP
- C. tRNA
- D. RNA

148. All of the following except ____ are functions of DNA.

- A. Encoding information needed to build proteins.
- B. Controlling physical characteristics of our bodies.
- C. Manufacturing specific proteins.
- D. Regulating all aspects of cellular metabolism.

149. What molecule is produced by the phosphorylation of ADP?

- A. ATPase
- B. ATP
- C. Adenosine Diphosphate
- D. Uridine Triphosphate

150. Metabolic turnover refers to _____. The rate at which this happens to glycogen in the liver is about ____.

- A. The conversion of diglycerides to triglycerides/once in a lifetime
- B. The method by which a disaccharide becomes a polysaccharide/every few minutes
- C. Continuous removal and replacement of organic molecules/every 1–2 days
- D. The rate at which ATP is synthesized/every 1–2 weeks

151. Each type of cell has a characteristic resting potential. Which is correct?

- A. Fat cells (-40 mV)
- B. Neurons (-70 mV)
- C. Cardiac muscle cells (-90 mV)
- D. All of the above are correct

152. Which of the following is not a function of the CSF?

- a) reduction of brain weight
- b) protection from blows
- c) nourishment of the brain
- d) initiation of some nerve impulses

153. Which statement about coma is true?

- a) Coma may be caused by widespread cerebral or brain stem trauma.
- b) During coma, brain oxygen consumption resembles that of a waking state.
- c) Coma is neurologically identical to syncope.
- d) Coma is a form of deep sleep.

154. Tremor at rest, shuffling gait, stooped posture, and expressionless face are characteristics of _____.

- a) Huntington's disease
- b) Parkinson's disease
- c) cerebellar disease
- d) spinal cord disease

155. Which of the following is the mildest consequence of traumatic brain injury?

- a) contusion
- b) concussion
- c) hemorrhage
- d) swelling

156. Which statement is not true?

- a) Sleep requirements decline from infancy to early adulthood, level off, then decline again in old age.
- b) Half of infant sleep is composed of REM sleep.
- c) Ten-year-olds are in REM sleep about 1.5-2 hours per night.
- d) Stage 4 sleep increases in old age.

157. The simplest reflexes are mediated at the level of the

- a) cerebrum.
- b) mesencephalon.
- c) cerebellum.
- d) medulla.
- e) spinal cord.

158. The highest levels of information processing occur in the

- a) cerebrum.
- b) mesencephalon.
- c) cerebellum.
- d) medulla.
- e) spinal cord.

159. Higher-order functions

- a) are subject to adjustments and modification over time.
- b) involve complex interactions between areas of the cortex and other areas of the brain.
- c) involve both conscious and unconscious information processing.
- d) all of the above
- e) B and C only

160. Which of the following help to protect the brain?

- a) the blood-brain barrier.
- b) the bones of the cranium.
- c) the cranial meninges.
- d) the CSF
- e) all of the above

161. _____ is a disorder affecting the comprehension and use of words.

- a) Dyslexia
- b) Ataxia
- c) Apraxia
- d) Bell's palsy
- e) none of the above

162. _____ is a printed record of the brain's electrical activity over a certain period of time.

- a) EKG (electrocardiogram)
- b) EEG (electroencephalogram)
- c) X ray
- d) MRI (magnetic resonance imaging)
- e) CAT scan

163. Which component of the cell membrane is primarily responsible for the membrane's ability to form a physical barrier between the cell's internal and external environments?

- A. Phospholipid bilayer
- B. Glycocalyx
- C. Peripheral proteins
- D. Proteoglycans

164. Which type of integral protein allows water and small ions to pass through the cell membrane?

- A. Receptor proteins
- B. Carrier proteins
- C. Channel proteins
- D. Recognition proteins

165. Which statement(s) correctly distinguish between cytoplasm and cytosol?

- A. Cytosol has a higher concentration of suspended proteins than cytoplasm.
- B. Cytosol is the intracellular fluid and is composed of nutrients, ions, proteins, and wastes and cytoplasm is the term for all material located between the cell membrane and nucleus.
- C. Potassium ion concentration is higher in cytoplasm than in cytosol.
- D. Cytosol and cytoplasm refer to the same substance.

166. What is/are the major difference(s) between cytosol and extracellular fluid?

- A. Cytosol has a higher concentration of sodium ions
- B. ECF is a transport medium only, whereas cytosol has some carbohydrates and amino acids
- C. Cytosol has a higher concentration of potassium ions
- D. B and C

167. Which of the listed organelles is non-membranous and correctly paired with its function?

- A. Microvilli/movement of materials over cell surface
- B. Ribosomes/protein synthesis
- C. Mitochondria/produces ATP required by cell
- D. Microtubules/increase surface area for absorption

168. What does the presence of many mitochondria imply about a cell's energy requirements?

- A. A high demand for energy
- B. A low demand for energy
- C. Fluctuating energy needs requiring flexibility
- D. Number of mitochondria provides no implication of energy needs

169. Certain cells in the ovaries and testes contain large amounts of smooth endoplasmic reticulum (SER). Why?

- A. To produce large amounts of proteins

B. To digest materials quickly

C. To store large amounts of hormones

D. To produce large amounts of steroid hormones

170. Cells lining the small intestine have numerous fingerlike projections on their free surface. What are these structures, and what is their function?

A. Microvilli; move substances across cell surface

B. Microvilli; increase cell's surface area and absorptive ability

C. Cilia; increase cell's surface area and absorptive ability

D. Cilia; move substances across cell surface

171. What is the genetic code?

A. It is the method by which proteins code for amino acids.

B. It is the "language" the cell uses in the form of triplet codons, which specify individual amino acids.

C. It is the portion of DNA that contains instructions for the synthesis of tRNA.

D. It is the strand of DNA containing complementary triplets used for mRNA production.

172. What process would be affected by the lack of the enzyme RNA polymerase?

A. Nothing would be affected; DNA polymerase would take over

B. Cell's ability to duplicate DNA

C. Cell's ability to translate DNA

D. Cell's ability to transcribe RNA

173. Ridges of tissue on the surface of the cerebral hemispheres are called _____.

a) gyri

b) sulci

c) fissures

d) ganglia

174. The frontal lobe is separated from the temporal lobe by the _____.

a) longitudinal fissure

b) lateral sulcus

c) central sulcus

d) cranial fossa

175. The brain area that regulates activities that control the state of wakefulness or alertness of the cerebral cortex is the _____.

a) thalamus

b) reticular formation

c) pyramids

d) limbic system

176. Which of the following would you not find in normal cerebrospinal fluid?

a) glucose

b) red blood cells

c) potassium

d) protein

177. REM sleep is associated with _____.

a) decreased vital signs, such as heart rate and blood pressure

b) decreased activity of the brain, especially the cerebral cortex

c) temporary skeletal muscle inhibition except for ocular muscles and diaphragm

d) decreased oxygen use, especially in the cerebral cortex

178. What are two reasons that mRNA transcription so vital?

- A. Protein synthesis occurs through transcription/it occurs very quickly
- B. DNA cannot leave the nucleus/transcription ensures that mRNA exactly matches the coding strand of the gene
- C. It allows formation of chains of amino acids/the same information is presented in a different language
- D. None of these is correct

179. Define "selectively permeable" as it applies to the cell membrane.

- A. It is a membrane through which nothing can pass.
- B. It is a membrane that allows the free passage of some molecules, but restricts the passage of others.
- C. It is a membrane through which any substance can pass without restriction.
- D. It is a membrane that only allows substances through by active transport.

180. How would a decrease in the concentration of oxygen in the lungs affect the diffusion of oxygen into the blood?

- A. Decrease in molecule size results in decreased diffusion
- B. Decrease in distance results in increased diffusion
- C. Increase in electrical forces results in increased diffusion
- D. Decrease in gradient size results in decreased speed of diffusion

181. What is so special about osmosis, compared with diffusion?

- A. Osmosis allows free passage of alcohol, fatty acids, and steroids through the plasma membrane.
- B. Osmosis is the movement of water rather than solute.
- C. In osmosis, water flows across a membrane toward the solution that has a higher concentration of solutes, because that is where water concentration is lower.
- D. B and C are correct.

182. Some pediatricians recommend the use of a 1% salt solution to relieve congestion for infants with stuffy noses. What effect would such a solution have on the cells lining the nasal cavity, and why?

- A. Cells will lose water because this is a hypertonic solution.
- B. Cells will lose water because this is a hypotonic solution.
- C. Cells will gain water because this is a hypertonic solution.
- D. Cells will gain water because this is a hypotonic solution.

183. All methods of carrier-mediated transport have the following characteristics ____:

- A. Concentration gradients, transmembrane potential, and resting potential
- B. Specificity, saturation limits, and regulation
- C. Endocytosis, exocytosis, and pinocytosis
- D. Isotonic, hypertonic, and hypotonic solutions

184. Which of the following methods of carrier-mediated transport is paired with its function?

- A. Active transport/it is dependent on a concentration gradient
- B. Facilitated diffusion/substances are bound to a receptor and passed across the cell membrane by carrier proteins
- C. Sodium-potassium pump/moves Na outside the cell and K inside the cell
- D. B and C are correct

185. During digestion in the stomach, the concentration of hydrogen ions (H^+) rises to many times that of cells in the stomach. Which transport process must be operating?

- A. Facilitated diffusion
- B. Osmosis
- C. Active transport
- D. Endocytosis

186. When they encounter bacteria, certain types of white blood cells engulf the bacteria and bring them into the cell. What is this process called?

- A. Pseudocytosis
- B. Exocytosis
- C. Pinocytosis
- D. Phagocytosis

187. The space between the suspensory ligament and the iris is the

- a) anterior chamber.
- b) posterior chamber.
- c) pupil.
- d) canal of Schlemm.
- e) vitreous body.

188. The passageway that drains aqueous humor back to the veins servicing the eye is the

- a) anterior chamber.
- b) posterior chamber.
- c) canal of Schlemm.
- d) pupil.
- e) lacrimal duct.

189. The neural tunic

- a) consists of three distinct layers.
- b) contains the photoreceptor cells.
- c) produces the vitreous humor.
- d) forms the iris.
- e) secretes a bacteriocidal enzyme.

190. The lens focuses light on the photoreceptor cells by

- a) moving up and down.
- b) moving in and out.
- c) changing shape.
- d) opening and closing.
- e) dilating and constricting.

191. In the human eye, the greatest amount of refraction occurs when light passes from the air into the

- a) iris.
- b) cornea.
- c) lens.
- d) aqueous humor.
- e) vitreous humor.

192. The ciliary muscle helps to

- a) control the amount of light reaching the retina.
- b) control the shape of the lens.
- c) control the production of aqueous humor.
- d) move the eyeball.
- e) regulate the smoothness of the surface of the cornea.

193. There are three different types of cones, each one sensitive to a different range of photons. These cones are designated

- a) red, yellow, blue.
- b) red, blue, green.
- c) red, green, yellow.
- d) yellow, green, blue.
- e) red, yellow, indigo.

194. An area of the retina that contains only cones and is the site of sharpest vision is the

- a) outer segment.
- b) inner segment.
- c) fovea.
- d) optic disc.
- e) tapetum lucidum.

195. Visual pigments are derivatives of the compound

- a) retinal.
- b) opsin.
- c) rhodopsin.
- d) transducin.
- e) cGMP.

196. A tactile receptor that monitors distortions and movements across the body surface is a

- a) Merkel's disc.
- b) Pacinian corpuscle.
- c) Meissner's corpuscle.
- d) Ruffini corpuscle.
- e) root hair plexus.

197. Tactile receptors include all of the following, except

- a) free nerve endings.
- b) horizontal cells.
- c) Merkel's discs.
- d) Meissner's corpuscles.
- e) the root hair plexus.

198. All of the following are true of the lacrimal glands, except that they

- a) are more active during childhood.
- b) produce most of the volume of tears.
- c) produce a secretion that contains lysozyme.
- d) produce watery, slightly alkaline secretions.
- e) are located in pockets in the frontal bones.

199. All of the following are true of the fibrous tunic of the eye, except that it

- a) consists of the sclera and the cornea.
- b) provides mechanical support and some protection for the eye.
- c) produces vitreous but not aqueous humor.
- d) assists in the process of focusing.
- e) serves as a point of attachment for extrinsic eye muscles.

200. All of the following are true of the vascular tunic of the eye, except that it

- a) provides a route for blood vessels and lymphatics that supply tissues of the eye.
- b) regulates the amount of light entering the eye.
- c) secretes and reabsorbs the aqueous humor.

- d) contain pain receptors.
- e) controls the shape of the lens.

are I
sing F
1.171

SECTION B

Matching Questions

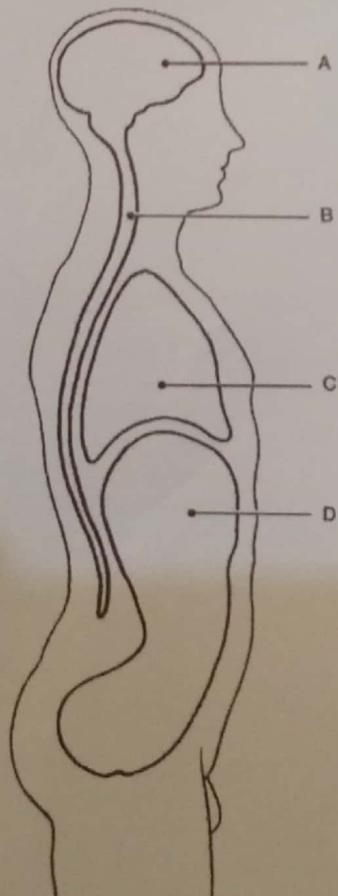


Figure 1

Using Figure 1 match the following cavities:

1) Thoracic cavity.

2) Cranial cavity.

3) Abdominal cavity.

4) Vertebral cavity.

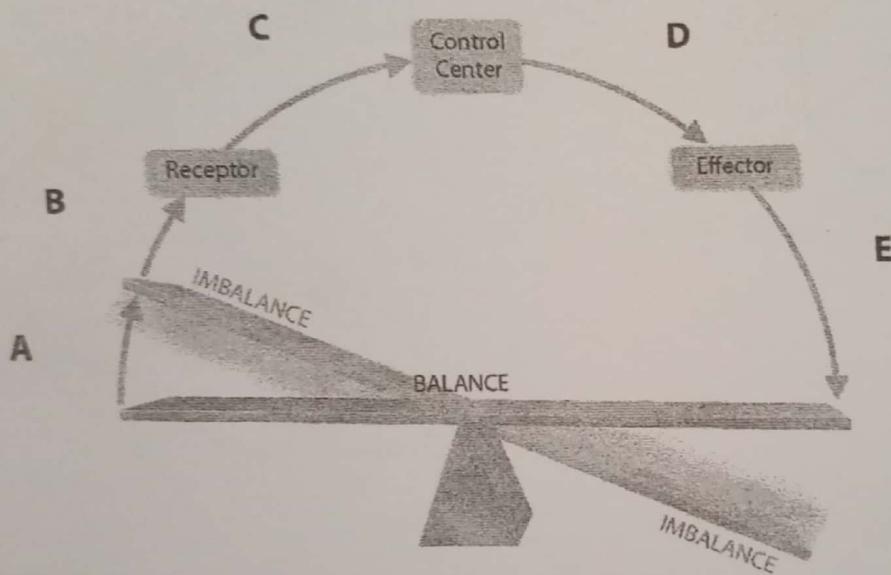


Figure 2

Using Figure 2, match the following regions:

5) Input.

6) Receptor.

7) Output.

8) Stimulus.

9) Response.

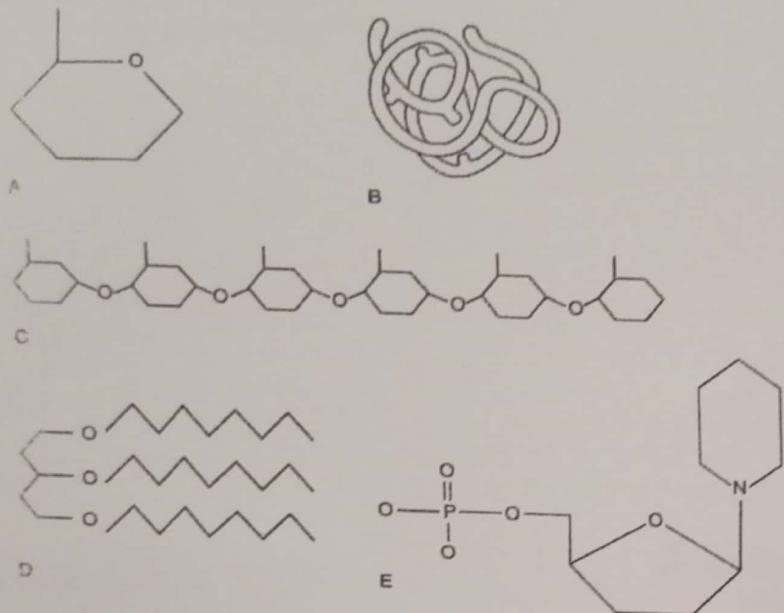


Figure 3

Using Figure 3, match the following:

- 10) Lipid
- 11) Functional protein
- 12) Nucleotide
- 13) Polysaccharide.
- 14) Monosaccharide
- 15) Polymer
- 16) Tertiary (protein) structure

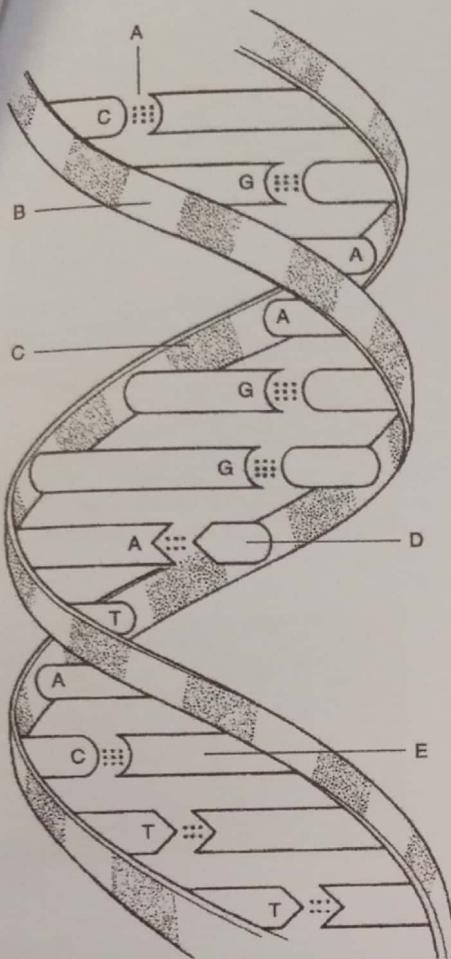


Figure 4

Using Figure 4, match the following:

a) I
b) J
c) V
d) \
e) X

17) Deoxyribose sugar.

18) Thymine

19) Guanine

20) Phosphate

21) Hydrogen bonds

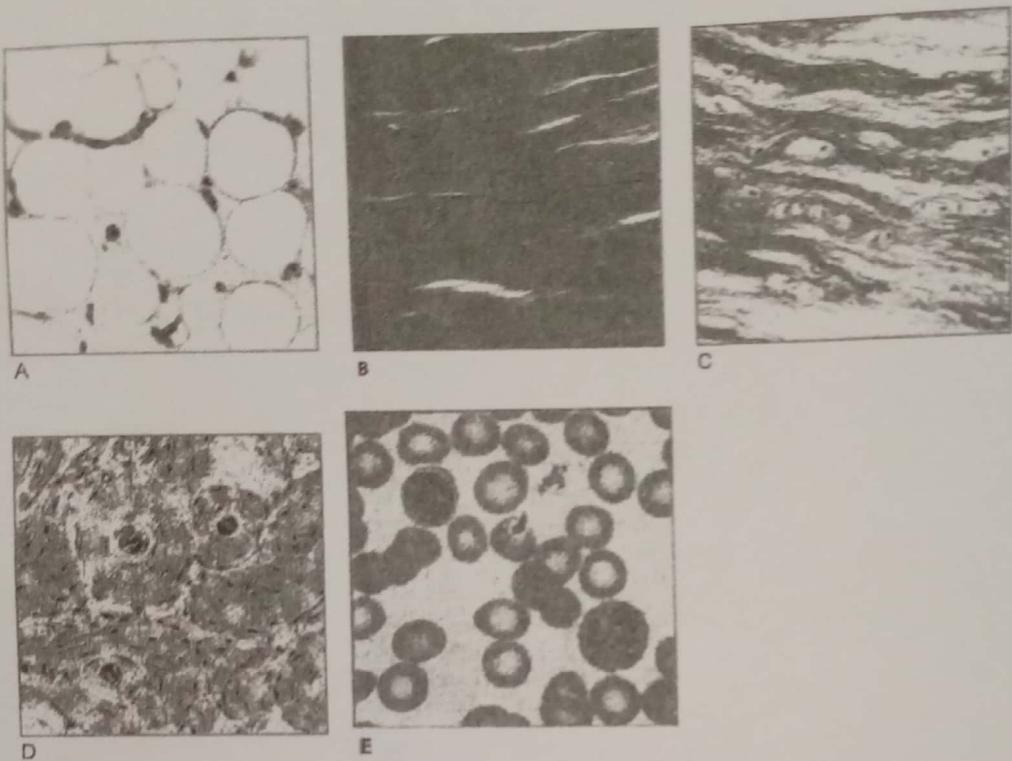


Figure 5

Using Figure 5, match the following:

22) Supports and protects; stores calcium.

23) Forms tendons and ligaments.

Ans

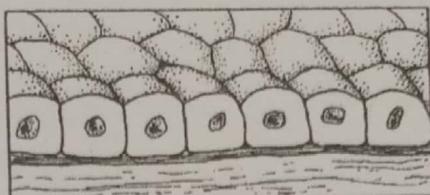
24) Supports and protects; insulates against heat loss; reserve source of fuel.

25) Provides tensile strength with the ability to absorb compressive shock.

26) Composed of cells in a fluid matrix.



A.



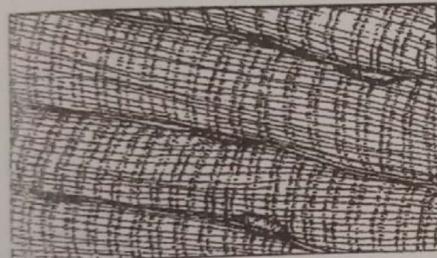
B.



C.



D.



E.

Figure 6

Using Figure 6, match the following:

- 27) Simple cuboidal epithelium.
- 28) Cardiac muscle.
- 29) Simple squamous epithelium.
- 30) Stratified squamous epithelium.
- 31) Skeletal muscle.



Figure 7

Use Figure 7 to answer the following questions:

32) Identify the cell labeled "5."

- A) erythrocyte
- B) lymphocyte
- C) eosinophil
- D) basophil
- E) monocyte

33) Identify the cell labeled "6."

- A) erythrocyte
- B) lymphocyte
- C) eosinophil
- D) basophil
- E) monocyte

34) Identify the cell labeled "4."

- A) neutrophil
- B) lymphocyte
- C) platelet
- D) basophil
- E) monocyte

35) Identify the cell labeled "3."

- A) eosinophil
- B) lymphocyte
- C) erythrocyte
- D) basophil
- E) monocyte

36) Identify the cell labeled "2."

- A) lymphocyte
- B) eosinophil
- C) basophil
- D) neutrophil
- E) monocyte

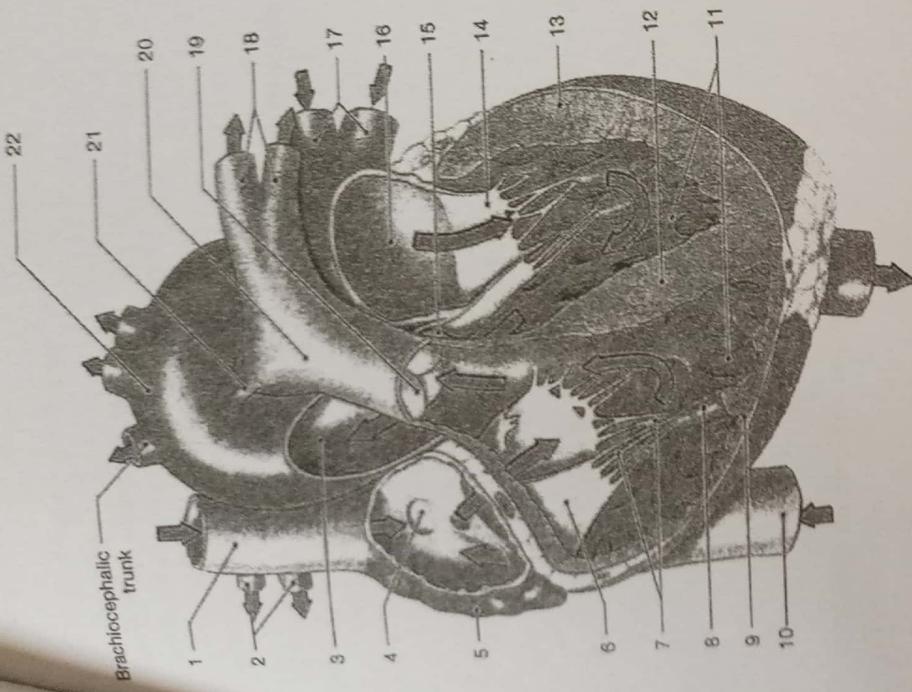


Figure 8 The Heart

Use Figure 8 to answer the following questions:

37) Identify the structure labeled "19."

- A) tricuspid valve
- B) pulmonary semilunar valve
- C) aortic semilunar valve
- D) bicuspid valve
- E) ligamentum arteriosum

38) Identify the structure(s) labeled "8."

- A) moderator band
- B) pectinate muscles
- C) papillary muscles
- D) trabeculae carneae
- E) chordae tendineae

39) Identify the structure labeled "6."

- A) cusp of tricuspid valve
- B) pulmonary semilunar valve
- C) aortic semilunar valve
- D) bicuspid valve
- E) ligamentum arteriosum

40) Which chamber receives oxygenated blood from the pulmonary circuit?

- A) 5
- B) 10
- C) 16
- D) 13
- E) both 5 and 16

41) Identify the structure labeled "21."

- A) bicuspid valve
- B) pulmonary semilunar valve
- C) aortic semilunar valve
- D) ligamentum arteriosum
- E) tricuspid valve

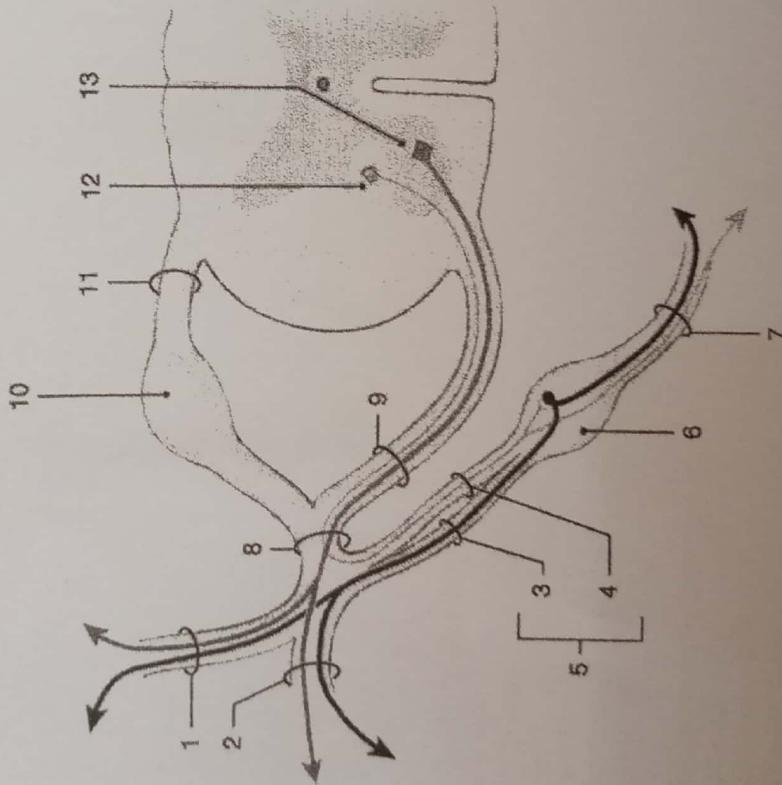


Figure 9 Spinal Nerves

Use Figure 9 to answer the following questions:

42) Identify the structure labeled "2."

- A) anterior root
- B) posterior ramus
- C) spinal nerve
- D) anterior ramus

C) white ramus

43) Identify the structure labeled "3."

- A) spinal nerve
- B) gray ramus communicans
- C) white ramus communicans
- D) posterior ramus communicans
- E) anterior ramus communicans

44) Ken has a herniated disc which is pinching the structure labeled "10". He is most likely experiencing impairment in which sensory pathway?

- A) somatic sensory
- B) visceral sensory
- C) somatic and visceral sensory
- D) somatic and visceral motor
- E) visceral motor

45) Damage to which structure would lead to paralysis of limbs?

- A) 11
- B) 2
- C) 1
- D) 7
- E) 9

46) Identify the structure labeled "4."

- A) spinal nerve
- B) gray ramus
- C) white ramus
- D) posterior ramus
- E) anterior ramus

47) Identify the structure labeled "6."

- A) autonomic nerve
- B) sympathetic ganglion
- C) posterior root ganglion
- D) rami communicantes
- E) anterior root

48) Identify the structure labeled "8."

- A) peripheral nerve
- B) posterior ramus
- C) spinal nerve
- D) anterior root
- E) posterior root

49) What is the function of the structure labeled "12"?

- A) somatic motor control
- B) visceral motor control
- C) somatic sensory input
- D) visceral sensory input
- E) sensory receptor for pain

50) Which branch carries motor neurons to structures on the back of the body trunk?

- A) 1
B) 2
C) 5
D) 7
E) 11

51) In which structure are sensory cell bodies located?

- A) 4
B) 6
C) 5
D) 10
E) 12

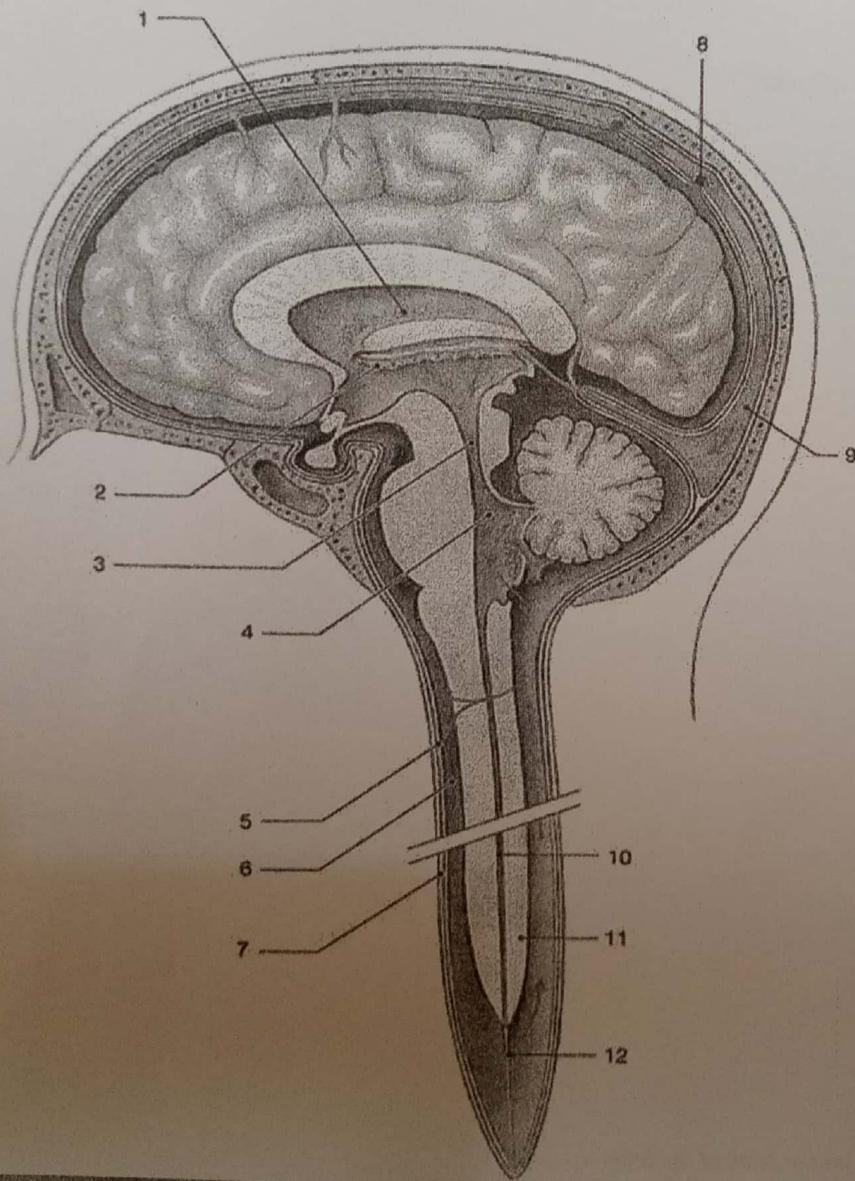


Figure 10 The Circulation of Cerebrospinal Fluid

Use Figure 10 to answer the following questions:

52) Identify the structure labeled "1."

- A) choroid plexus
- B) cerebral aqueduct
- C) third ventricle
- D) subarachnoid space
- E) corpus callosum

53) Ependymal cells are most likely found at which structure?

- A) 10
- B) 2
- C) 9
- D) 3
- E) 7

54) CSF is absorbed into the venous circulation via arachnoid granulations. Identify an arachnoid granulation.

- A) 8
- B) 1
- C) 10
- D) 2
- E) 4

55) Identify the structure labeled "3."

- A) lateral ventricles
- B) corpora quadrigemina
- C) cerebral aqueduct
- D) pons
- E) central canal

56) Identify the structure labeled "4."

- A) cerebral aqueduct
- B) lateral ventricle
- C) sagittal sinus
- D) 4th ventricle
- E) choroid plexus

57) Identify the structure labeled "6."

- A) choroid plexus
- B) fourth ventricle
- C) lateral ventricle
- D) cerebral aqueduct
- E) subarachnoid space

58) Identify the structure labeled "7."

- A) dura mater
- B) lateral ventricle
- C) fourth ventricle
- D) subarachnoid space
- E) filum terminale

59) Identify the structure labeled "9."

- A) dura mater
- B) superior sagittal sinus
- C) lateral ventricle
- D) subarachnoid space
- E) arachnoid granulation

60) Identify the structure labeled "10."

- A) arbor vitae
- B) central canal
- C) corpus callosum
- D) pons
- E) diencephalon

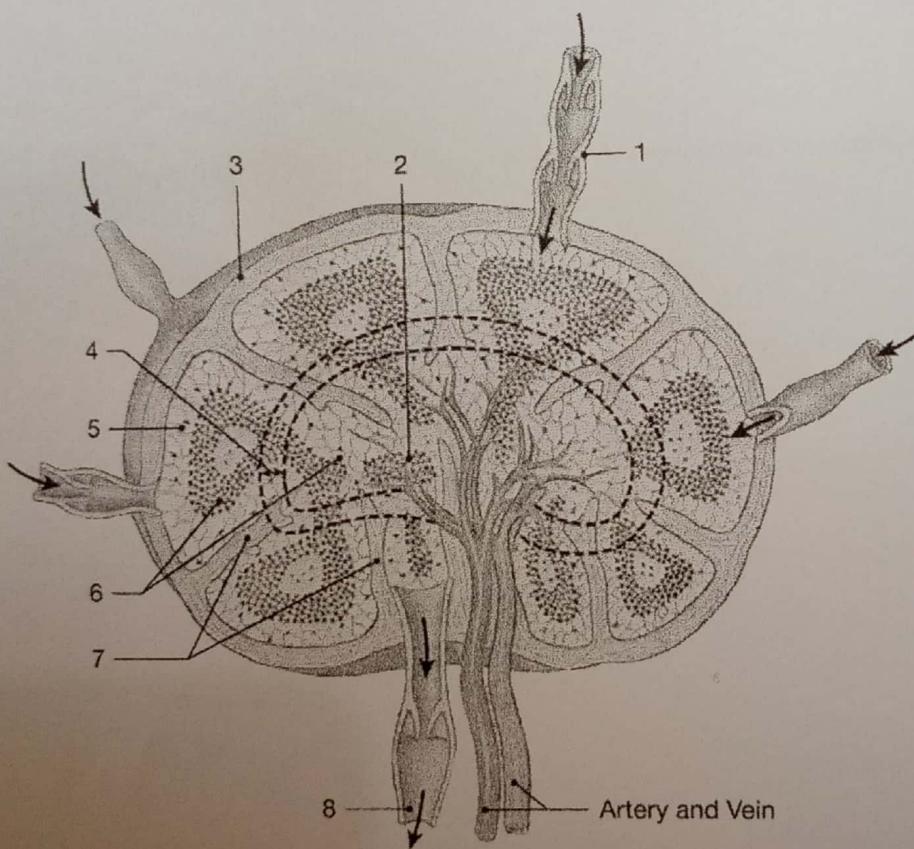


Figure 11 The Structure of a Lymph Node

Use Figure 11 to answer the following questions:

61) Identify the structure labeled "1."

- A) efferent lymphatic vessel
- B) venule
- C) arteriole
- D) afferent lymphatic vessel
- E) lymphatic nodule

62) Identify the structure labeled "2."

- A) deep cortex
- B) capsule
- C) subcapsular space
- D) trabeculae
- E) medullary cord

63) Identify the structure labeled "3."

- A) deep cortex
- B) capsule
- C) subcapsular space
- D) trabeculae
- E) outer cortex

64) Identify the structure labeled "6."

- A) medulla
- B) cortex
- C) capsule
- D) trabeculae
- E) cortical sinus

65) Identify the dominant cell type in the area labeled "6."

- A) T cells
- B) B cells
- C) erythrocytes
- D) platelets
- E) dendritic

66) A substance that provokes an immune response is called an

- A) immunoglobulin.
- B) antihistamine.
- C) antibody.
- D) antigen.
- E) allopath.

67) In general, lymphocytes

- A) spend most of their time in lymphatic tissue.
- B) have relatively short life spans.
- C) have two nuclei.
- D) are produced and mature only in red bone marrow.
- E) are located primarily in the blood stream.

68) The cells directly responsible for cellular immunity are the _____ cells.

- A) dendritic
- B) plasma
- C) helper T
- D) cytotoxic T
- E) suppressor T

69) The cells responsible for humoral immunity are the _____ cells.

- A) NK
- B) B
- C) helper T
- D) cytotoxic T
- E) suppressor T

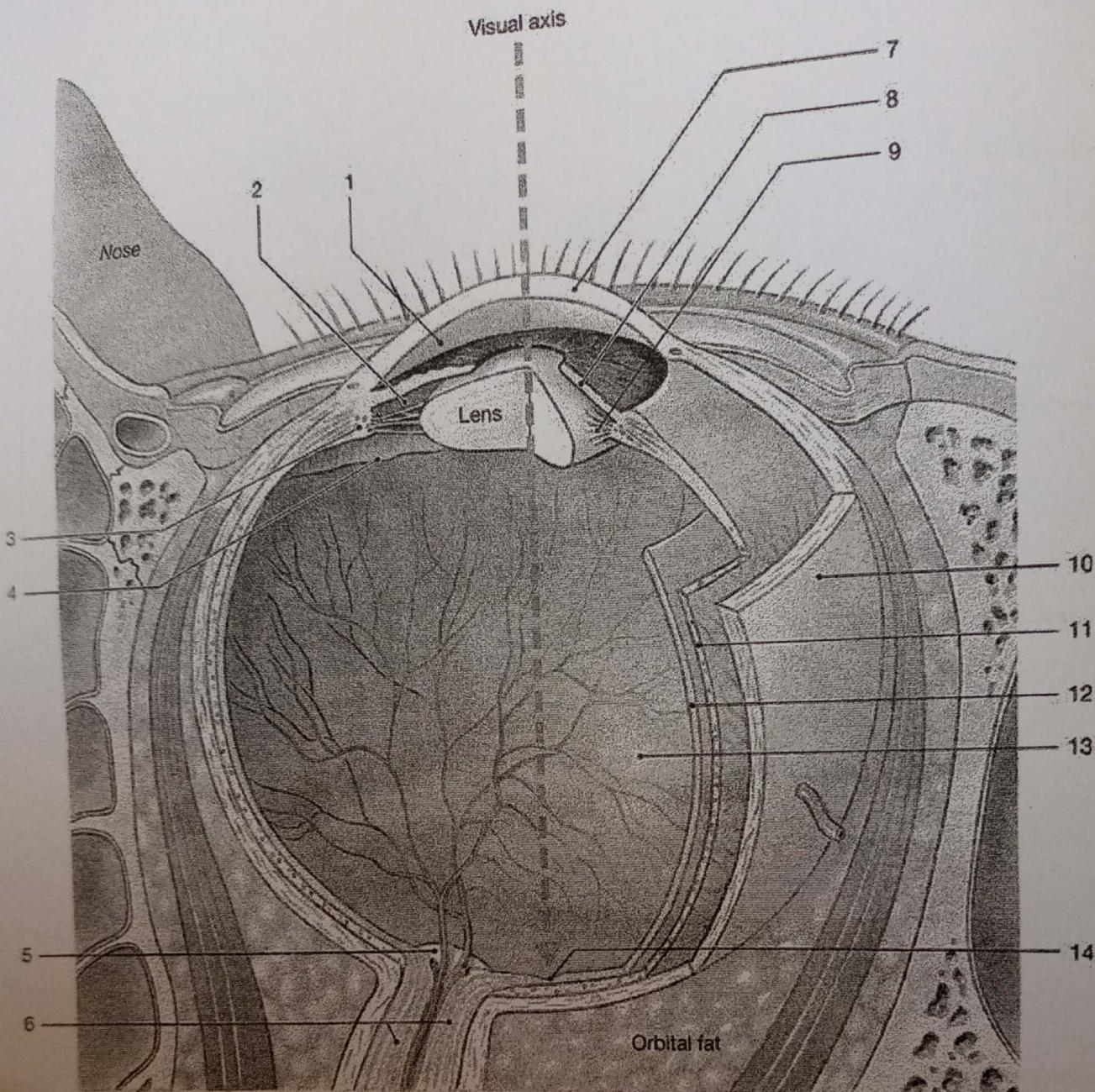


Figure 12 The Sectional Anatomy of the Eye

Use Figure 12 to answer the following questions:

70) Identify the space labeled "1."

- A) posterior cavity
- B) posterior chamber
- C) pupil
- D) anterior chamber
- E) vitreous chamber

71) Identify the structure labeled "7."

- A) choroid
- B) optic disc
- C) sclera
- D) retina

E) cornea

72) Which structure is commonly called the blind spot?

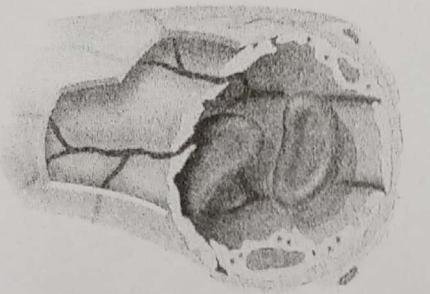
- A) 4
- B) 10
- C) 14
- D) 5
- E) 6

73) Identify the structure labeled "12."

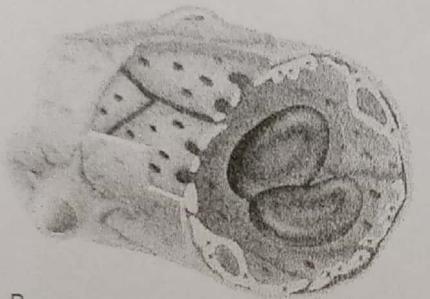
- A) pupil
- B) optic disc
- C) sclera
- D) fovea
- E) retina

74) Identify the structure labeled "14."

- A) pupil
- B) optic disc
- C) sclera
- D) fovea
- E) suspensory ligaments



A



B



C

Figure 13

Using Figure 13, match the following:

75) Sinusoid capillary.

Answer:

76) Capillary found in endocrine organs that allows hormones to gain rapid entry into the blood.

Answer:

77) Capillary with intercellular clefts found in the skin and muscles.

Answer:

78) Capillary that may contain Kupffer cells in the lining.

Answer

79) Capillary found where active capillary absorption of filtrate occurs.

Answer:

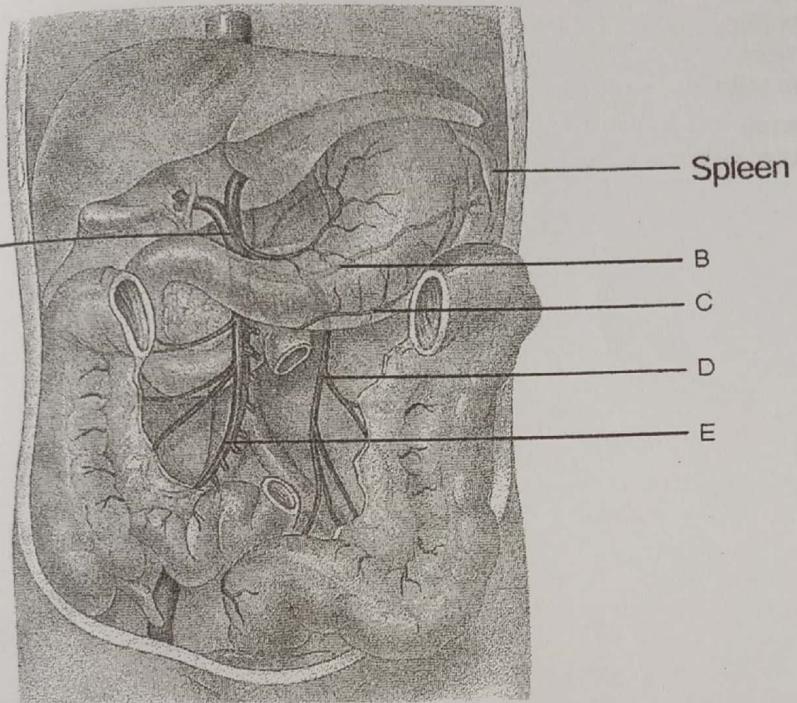


Figure 14

Using Figure 14, match the following:

80) Splenic vein.

Answer:

81) Superior mesenteric vein.

Answer:

82) Inferior mesenteric vein.

Answer:

83) Hepatic portal vein.

Answer:

84) Right gastroepiploic vein.

Answer:

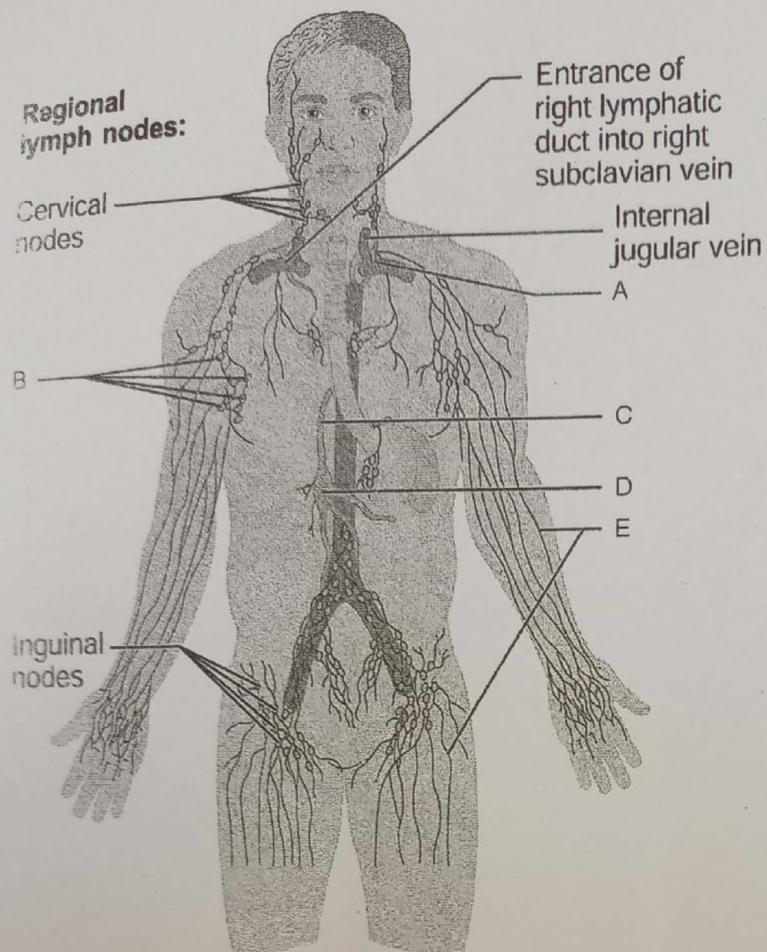


Figure 15

Using Figure 15, match the following:

85) Axillary node(s).

Answer:

86) Cisterna chyli.

Answer:

87) Entrance of thoracic duct into subclavian vein.

Answer:

88) Thoracic duct.

Answer:

89) Lymphatic collecting vessels.

Answer:

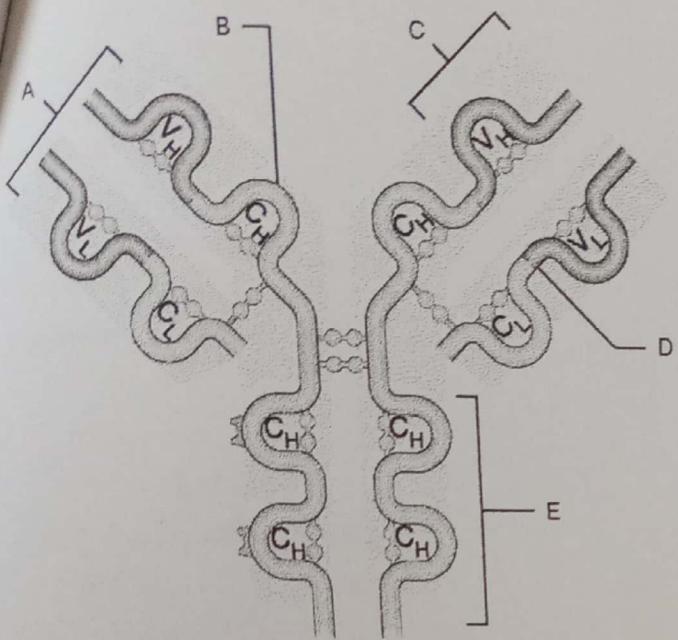


Figure 16

Using Figure 16, match the following:

90) Heavy chain.

Answer:

91) Light chain.

Answer:

92) Variable region.

Answer:

93) Constant region.

Answer:

94) Antigen-binding site.

Answer:

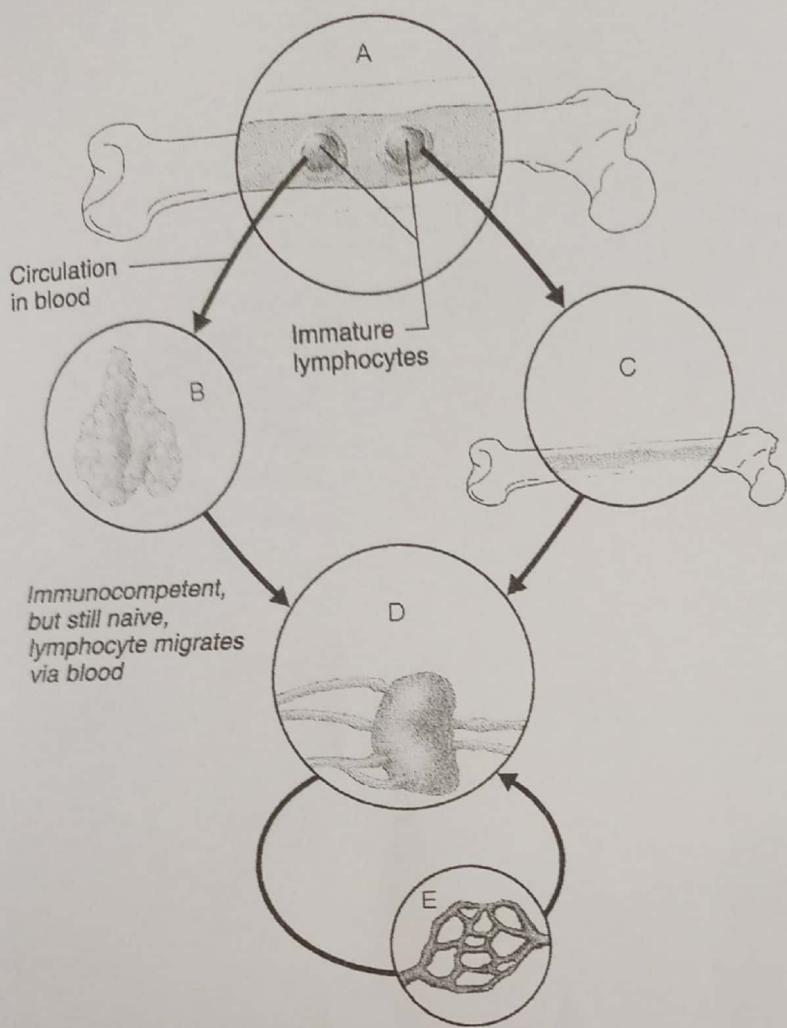


Figure 17

Using Figure 17, match the following:

95) Area where B cells become immunocompetent.

Answer:

96) Area where T cells become immunocompetent.

Answer:

97) Area where activated immunocompetent B and T cells recirculate.

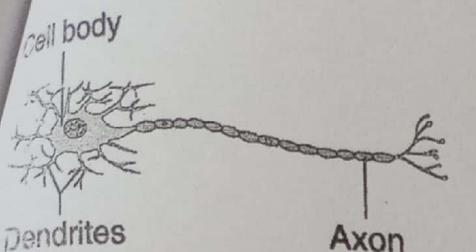
Answer:

98) Area seeded by immunocompetent B and T cells.

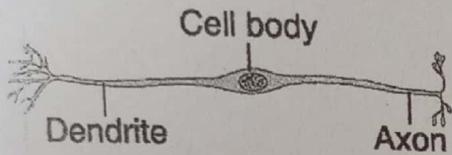
Answer:

99) Area where antigen challenge and clonal selection are most likely to occur.

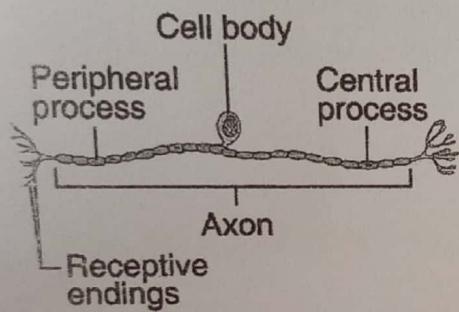
Answer:



A



B



C

Figure 18

Using Figure 18, match the following:

100) Which neuron would connect to a muscle?

Answer:

101) Which neuron would be found in the retina of the eye?

Answer:

102) Which neuron is a sensory neuron found in a reflex arc?

Answer:

103) Which neuron is never myelinated?

Answer:

104) Which neuron is rare?

Answer:

105) In a reflex arc, which neuron has its cell body inside the spinal cord?

Answer:

106) Which neuron is common only in dorsal root ganglia of the spinal cord and sensory ganglia of cranial nerves?

Answer:

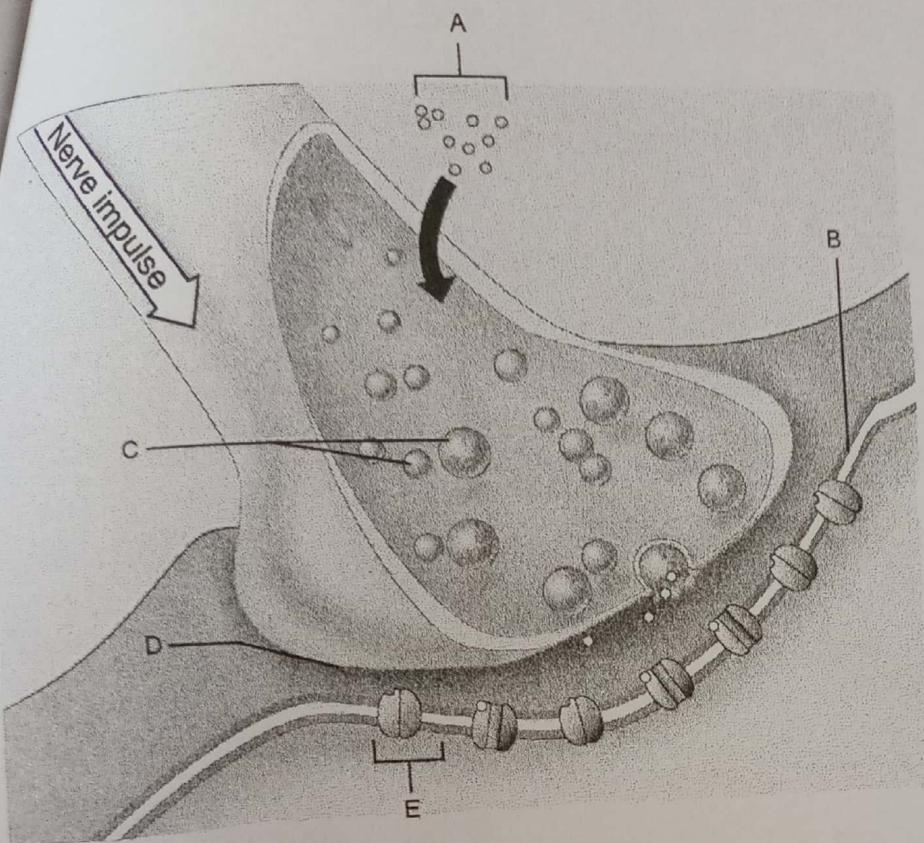


Figure 19

Using Figure 19 match the following:

108) Ion channel.

Answer:

109) Synaptic vesicles.

Answer:

110) Calcium ions.

Answer:

111) Postsynaptic membrane.

Answer:

112) Synaptic cleft.

Answer:

Match the following:

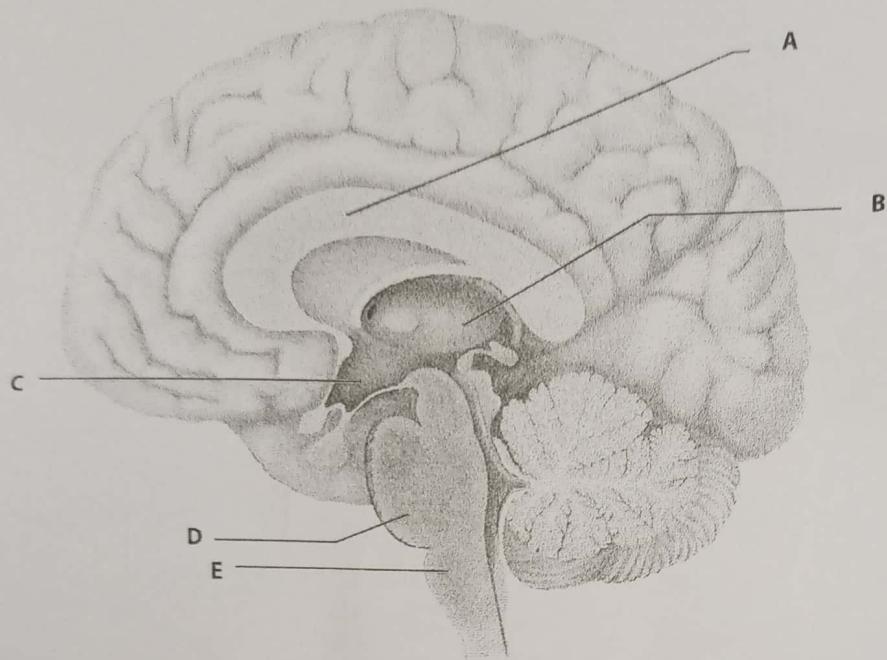


Figure 20

Using Fig. 20 Match the following:

113) White fiber tracts

Answer:

114) Thalamus

Answer:

115) Pons

Answer:

116) Hypothalamus

Answer:

117) Medulla Oblongata

Answer:

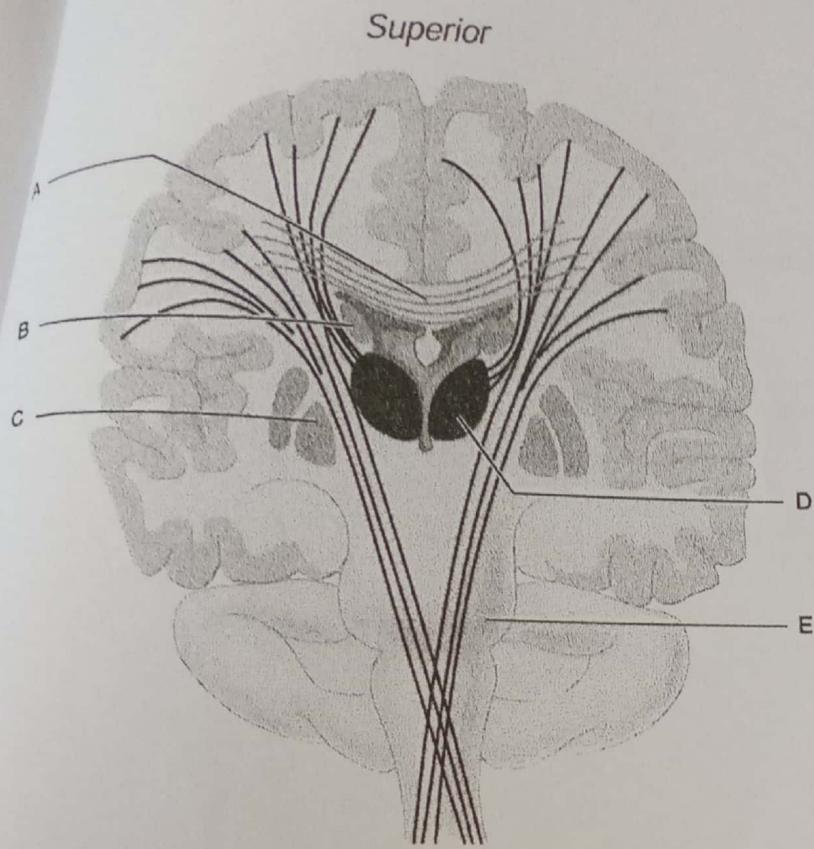


Figure 21

Using Figure 21, match the following:

118) Pons.

Answer:

119) Corpus callosum.

Answer:

120) Caudate nucleus.

Answer:

121) Globus pallidus.

Answer:

122) Thalamus.

Answer:

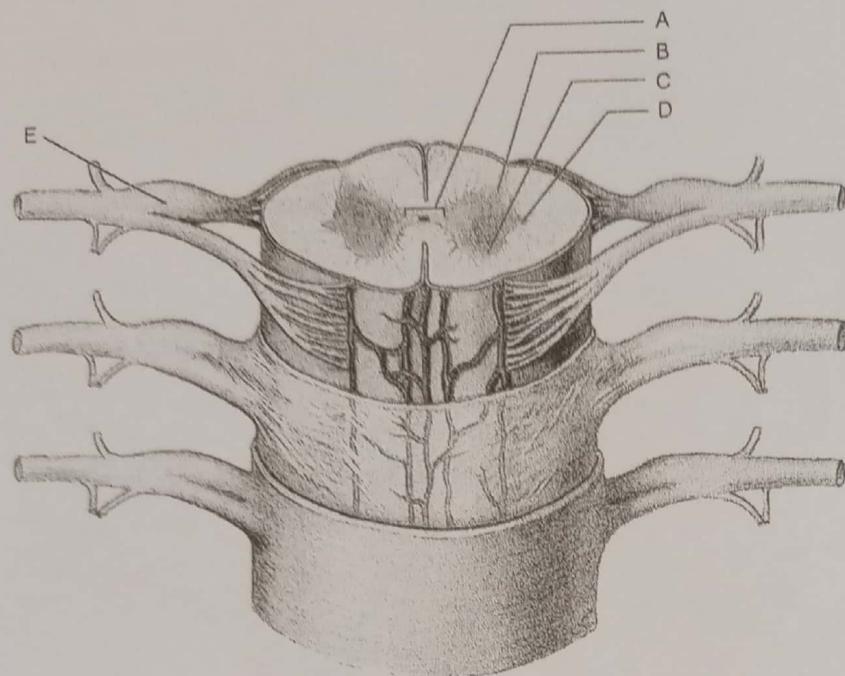


Figure 22

Using Figure 22, match the following:

123) Site of efferent soma.

Answer:

124) Site of axons and afferent neurons.

Answer:

125) Site of sensory soma.

Answer:

126) Gray commissure.

Answer:

127) Horn containing autonomic neurons

Answer:

128) Site containing central canal.

Answer:

129) Multipolar neurons are common here.

Answer:

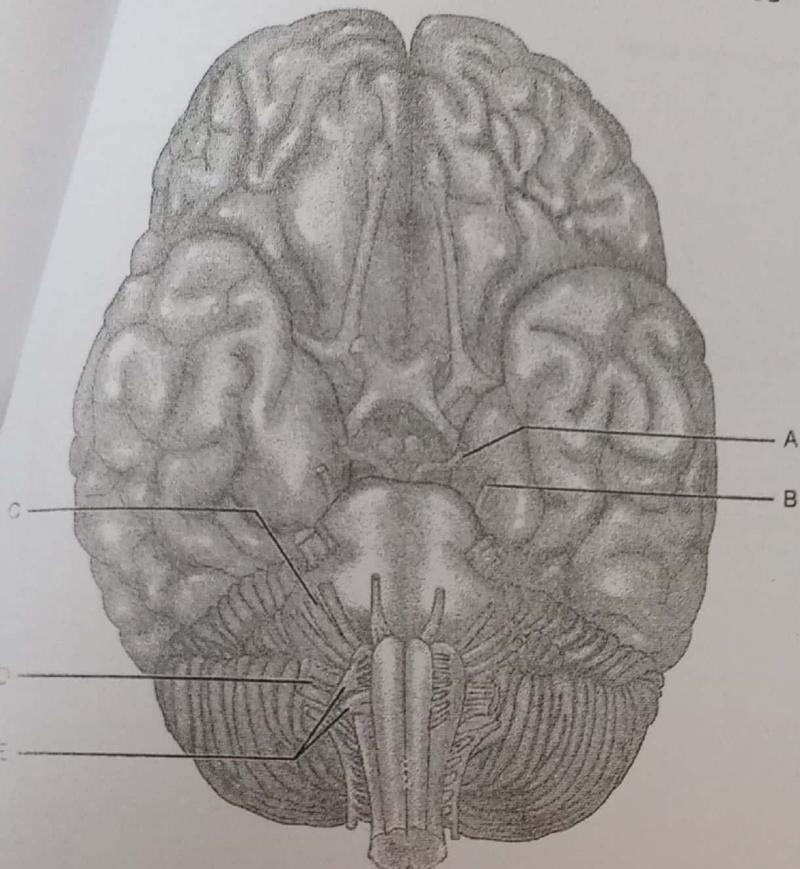


Figure 23

Using Figure 23, match the following:

130) Innervates the superior oblique muscle.

Answer:

131) Longest cranial nerve.

Answer:

132) Damage to this nerve would cause dizziness, nausea, and loss of balance.

Answer:

133) Involved in movement of the digestive tract.

Answer:

134) Damage to this nerve would cause difficulty in speech and swallowing, but no effect on visceral organs.

Answer:

135) Damage to this nerve would keep the eye from rotating inferolaterally.

Answer:

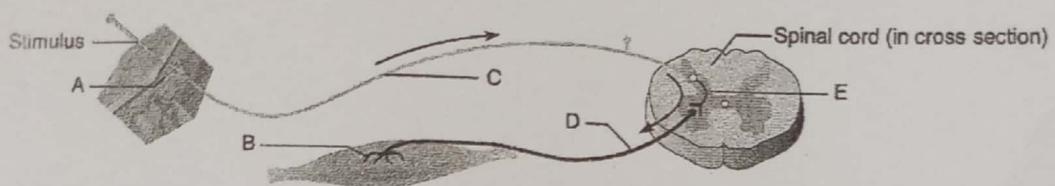


Figure 24

Using Figure 24, identify the following components of the reflex arc:

136) Integration center.

Answer:

137) Sensory neuron.

Answer:

138) Effector.

Answer:

139) Motor neuron.

Answer:

140) Receptor.

Answer:

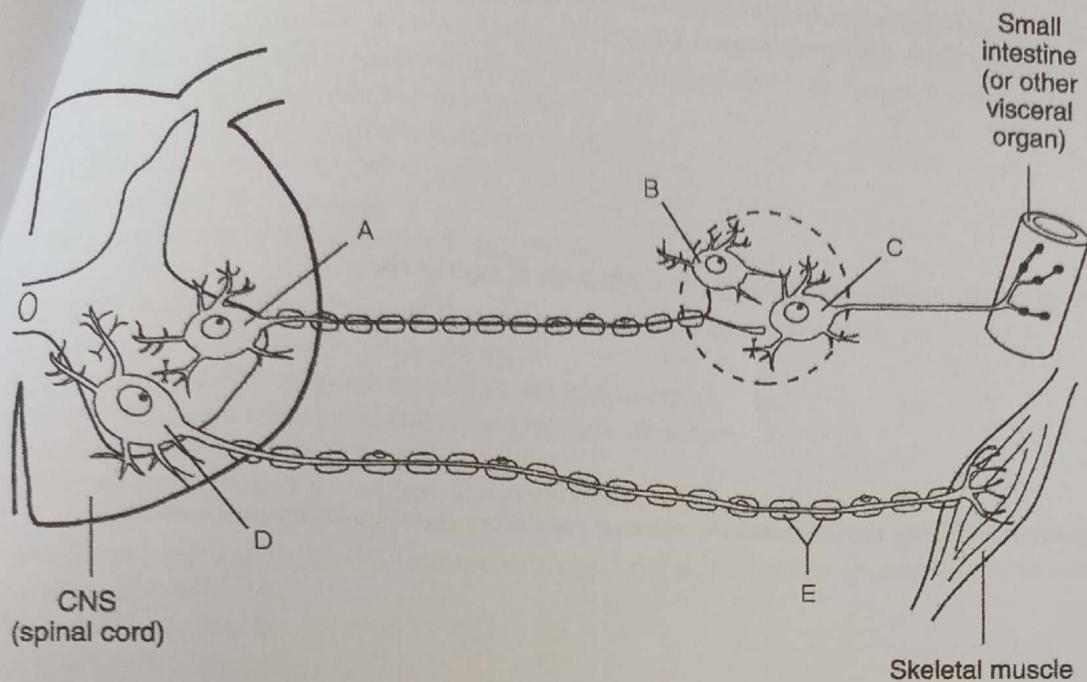


Figure 25

Using Figure 25 , match the following:

- 141) Myelin sheath.

Answer:

- 142) Cell body of ANS preganglionic neuron.

Answer:

- 143) Cell body of ANS postganglionic neuron.

Answer:

- 144) Cell body of the somatic neuron.

Answer:

45) Mary, who is 6 months pregnant, goes to her physician for a test to check the development of her fetus. The physician uses a device that emits sound waves to produce an image of the fetus. This technique is known as

- X ray.
- CT.
- MRI.
- ultrasound.
- radiography.

46) A diagnostic technique that uses a computer to produce sectional views of the body from X rays is the

- angiogram.
- radiograph.
- CT scan.
- MRI scan.
- ultrasound.

47) When a variation outside normal limits triggers a response that restores the normal condition, the regulatory mechanism involves

- negative feedback.
- positive feedback.
- compensation.
- adaptation.
- habituation.

48) In positive feedback, the initial stimulus produces a response that

- suppresses the stimulus.
- has no effect on the stimulus.
- interferes with the completion of the process.
- exaggerates the stimulus.
- impedes the stimulus.

49) Analysis of a tissue sample indicates that it contains abundant filaments composed of the protein myosin and many actin microfilaments. This tissue is probably

- nerve tissue.
- reproductive tissue.
- bone.
- muscle tissue.
- liver tissue.

50) Examination of a sample of glandular cells reveals an extensive network of smooth endoplasmic reticulum. Which of the following would be a possible product of these cells?

- digestive enzymes
- steroid hormones
- protein hormones
- transport proteins
- antibodies

51) Breathing faster and deeper eliminates more carbon dioxide from the body than normal breathing. Under these circumstances

- more carbon dioxide will diffuse out of the blood.
- more carbon dioxide will diffuse into the blood.
- less carbon dioxide will diffuse out of the blood.
- less carbon dioxide will diffuse into the blood.
- the rate of carbon dioxide diffusion will remain unchanged.

152) While studying the transport of molecule B across the cell membrane, you discover that as the concentration of B in the extracellular fluid is increased, so initially is the rate of transport. If the concentration of B is increased more, the rate becomes constant (the system exhibits saturation). Which of the following statements concerning this situation is true?

- A) Cellular energy is expended in this process.
- B) The transport process involves a carrier protein.
- C) The process is a type of endocytosis.
- D) Osmosis must be occurring.
- E) This is an example of an ion exchange pump.

153) If the permeability of the cell membrane to sodium ions increased,

- A) more sodium ions would leave the cell.
- B) the resting membrane potential would be less negative.
- C) the resting membrane potential would be more negative.
- D) the cell would lose more potassium ions.
- E) the cell would gain both sodium and potassium ions.

154) During starvation, steroid hormones trigger the transcription of genes for lipid metabolism in their target cells. This would be an example of control by

- A) negative feedback.
- B) positive feedback.
- C) repressors.
- D) inducers.
- E) modulators.

155) Close examination of an organ reveals a lining of several layers of cells. The layers do not contain any blood vessels and one surface of the cells is open to the internal cavity of the organ. This tissue is probably

- A) epithelium.
- B) muscle tissue.
- C) connective tissue.
- D) neural tissue.
- E) fat tissue.

156) Examination of a tissue sample reveals groups of cells united by junctional complexes and interlocking membranes. The cells have one free surface and lack blood vessels. The tissue is most likely _____ tissue.

- A) muscle
- B) neural
- C) epithelial
- D) connective
- E) adipose

157) Microscopic examination of a tissue reveals an open framework of fibers with a large volume of fluid ground substance and elastic fibers. This tissue would most likely have come from the

- A) inner wall of a blood vessel.
- B) lungs.
- C) spleen.
- D) tissue that separates skin from underlying muscle.
- E) bony socket of the eye.

158) The level of erythropoietin in the blood would rise due to all of the following, except

- A) during anemia.
- B) at high altitudes.
- C) as a consequence of hemorrhage.
- D) during periods of fasting.
- E) when blood flow to the kidneys is disrupted.

159) What effect would a drug that interferes with protein synthesis have on the development of red blood cells?

- A) Fewer cells than normal would be formed.
- B) The cells formed would not be able to carry as much oxygen as normal.
- C) The cells formed would carry larger amounts of carbon dioxide.
- D) The cells would be round like spheres.
- E) The cells formed would have abnormal cell membranes.

160) Which of the following would you expect to see in elevated numbers in a peripheral blood sample after donating a pint of blood to the Red Cross?

- A) erythrocytes
- B) platelets
- C) reticulocytes
- D) lymphocytes
- E) neutrophils

161) A physician examines a patient who is suffering from anemia. The hematocrit and hemoglobin concentrations are both low. The mean corpuscular volume is normal but the mean corpuscular hemoglobin concentration is low. These results would indicate

- A) hemorrhagic anemia.
- B) aplastic anemia.
- C) iron deficiency anemia.
- D) pernicious anemia.
- E) macrocytic anemia.

162) Bill wants to determine his blood type, so he takes a few drops of blood from a puncture wound in his finger and mixes it with various antisera. His blood cells agglutinate when mixed with the anti-A sera but not with the anti-B or anti-D sera. This means that Bill

- A) Bill could receive type B blood in a transfusion.
- B) Bill could donate blood to an individual with type AB blood.
- C) Bill is Rh positive.
- D) Bill's plasma contains b agglutinins.
- E) Bill's plasma would cross-react with type O- red blood cells.

163) People who suffer from hemophilia A fail to produce a functional factor VIII; as a result

- A) they do not have a functional intrinsic pathway.
- B) they do not have a functional extrinsic pathway.
- C) they do not have a functional common pathway.
- D) their clotting times are shorter than normal.
- E) their blood will clot at a rate faster than normal.

164) A digestive disorder that impairs a person's ability to digest and absorb fats would interfere with

- A) the intrinsic pathway of clotting.
- B) the extrinsic pathway of clotting.
- C) the common pathway of clotting.
- D) the process of retraction.
- E) fibrinolysis.

165) Tom suffers from a severe liver disease. Which of the following symptoms would you expect to see as a result of this condition?

- A) decreased clotting ability
- B) decreased levels of bilirubin in the blood
- C) accumulation of fluid in the tissue spaces of the extremities
- D) all of the above
- E) A and C only

- 166) You would expect a person suffering from severe malnutrition to exhibit
 A) leukopenia.
 B) leukocytosis.
 C) polycythemia.
 D) elevated hematocrit.
 E) thrombocytosis.

167) Megan thinks she has an abscessed tooth. If she does, what type of white blood cell would you expect to see in elevated numbers in a differential count?

- A) neutrophils
 B) eosinophils
 C) basophils
 D) lymphocytes
 E) monocytes

168) If the membrane of the cardiac muscle cells in the SA node become more permeable to potassium ions, the

- A) heart rate will increase.
 B) heart rate will decrease.
 C) membrane will depolarize.
 D) stroke volume will increase.
 E) intracellular concentration of calcium ion will increase.

169) If the connection between the SA node and AV node becomes blocked,

- A) the ventricles will beat faster.
 B) the ventricles will beat more slowly.
 C) the ventricular rate of contraction will not be affected.
 D) the stroke volume will increase.
 E) none of the above

170) If a myocardial infarction results in the formation of scar tissue along the pathway of the left bundle branch,

- A) cardiac arrhythmias may occur.
 B) blood flow to the lungs will decrease.
 C) the ventricle will contract more forcefully.
 D) conduction through the left ventricle would remain normal.
 E) the right ventricle will fail to contract.

171) What effect would compressing the inferior vena cava just below the diaphragm have on cardiac function?

- A) Stroke volume would increase.
 B) Cardiac output would increase.
 C) Sympathetic stimulation of the heart would increase.
 D) all of the above
 E) both A and B

172) In which of the following situations would the end-systolic volume (ESV) be the greatest?

- A) when sympathetic stimulation of the heart is increased
 B) when parasympathetic stimulation of the heart is increased
 C) when the force of myocardial contraction is increased
 D) when the intracellular stores of calcium are increased
 E) when stroke volume is increased

173) In which situation would the stroke volume be the greatest?

- A) when venous return is increased
 B) when venous return is decreased
 C) when the force of contraction is decreased
 D) when the difference between the end-diastolic volume and the end-systolic volume is small

E) when calcium channel blockers are present

174) Manganese ion blocks the calcium channels in the cardiac muscle membrane. How would the presence of manganese in the extracellular fluid affect the contraction of the heart muscle?

- A) The plateau phase of contraction would be shorter.
- B) The refractory period would be shorter.
- C) The heart would beat less forcefully.
- D) The heart rate would increase.
- E) The contraction phase would be prolonged.

175) David suffers from a regurgitating mitral valve. This condition would cause

- A) increased cardiac output from the right ventricle.
- B) increased cardiac output from the left ventricle.
- C) fluid congestion in the lungs.
- D) decreased heart rate.
- E) decreased force of cardiac contraction.

176) If there is a blockage between the AV node and the AV bundle, how will this affect the appearance of the electrocardiogram?

- A) The P-R interval will be smaller.
- B) The QRS interval will be longer.
- C) There will be more P waves than QRS complexes.
- D) There will be more QRS complexes than P waves.
- E) The T wave will disappear.

177) Vickie has a tumor that causes her to secrete excess amounts of the hormone ADH. Because of the elevated level of hormone, she exhibits

- A) decreased blood volume.
- B) increased blood pressure.
- C) peripheral vasoconstriction.
- D) polycythemia.
- E) both B and C

178) Which of the following would be most likely to have the highest pulse pressure?

- A) an individual with aortic regurgitation
- B) an infant
- C) an athlete
- D) a 60-year-old individual
- E) a teenager

179) Which of the following would you expect to have the highest heart rate?

- A) a trained athlete
- B) an unconditioned individual
- C) a person with heart failure
- D) a teenager with a sedentary lifestyle
- E) an 80-year-old woman

180) The loss of vasomotor tone without a simultaneous loss of the sympathetic neural control of the heart would result in

- A) increased frequency of action potentials from the baroreceptors.
- B) inhibition of vasomotor tone.
- C) a decrease in arterial blood pressure, followed shortly by a reflex rise in blood pressure.
- D) a slower heart rate.
- E) a decrease, then a reflex rise in the total peripheral resistance.

181) Paul falls on an axe and cuts several major blood vessels in his leg. As a result of this injury, you would expect to observe all of the following, except a(an)

- A) increased heart rate.
- B) increase in blood pressure.
- C) increased secretion of renin by the kidneys.
- D) decreased secretion of atrial natriuretic hormone.
- E) increased total peripheral resistance.

182) Each of the following conditions would probably result in an elevation of angiotensin II in the blood of a normal adult, except

- A) essential hypertension.
- B) vasoconstriction of the renal arteries.
- C) decreased cardiac output.
- D) increased activity of the sympathetic nervous system.
- E) decreased blood flow to the kidneys.

183) Milly has just received a kidney transplant and is taking cyclosporin A. What does this medication do?

- A) prevents inflammation from destroying the transplanted kidney
- B) depresses hematopoiesis
- C) decreases the chemotaxis of macrophages to the transplanted kidney
- D) increases the number of antibodies in the blood
- E) suppresses cytotoxic T cells, thus preventing rejection

184) During a primary immune response, the

- A) IgM titer is initially higher than the IgG titer.
- B) IgG titer is initially higher than the IgM titer.
- C) IgM titer and the IgG titer are initially the same.

185) Leslie has a bad sore throat and the lymph glands in her neck are swollen. This would indicate that

- A) the focus of the infection is the lymph glands.
- B) lymph is not flowing through these lymph glands.
- C) the affected lymph glands contain an increased number of lymphocytes.
- D) the lymph gland is actively producing phagocytes.
- E) the lymph gland has increased its secretion of thymosin.

186) Neil accidentally ingests a substance that activates the complement factor C1 in the absence of bound antibodies. This substance would

- A) produce a fever.
- B) cause extensive cellular damage.
- C) increase circulation of lymph.
- D) activate blood clotting.
- E) block inflammation from occurring.

187) A sample of John's blood shows a high level of pyrogens. This would indicate that John

- A) has hypotension.
- B) is producing T lymphocytes.
- C) has a sore throat.
- D) is running a fever.
- E) has swollen lymph nodes.

188) In a routine examination, some blood is taken and analyzed. The results show a high IgM titer for the mumps antigen. This would indicate the person

- A) has just recovered from mumps.
- B) is just coming down with mumps.
- C) is allergic to mumps.
- D) is immune to mumps.

E) has never been exposed to mumps.

189) A fluid sample contains a large amount of IgA type antibody. This fluid is probably

- A) blood.
- B) lymph.
- C) serum.
- D) tears.
- E) intracellular.

190) In an experiment, Roger injects some mice with interleukin II, and after 3 days he examines the blood and lymph for changes. What would you expect to observe following this treatment?

- A) decreased number of T cells
- B) increased number of T cells
- C) decreased number of B cells
- D) increased number of mast cells
- E) both A and D

191) If your vision is 20/20, this means that you can

- a) see 20 point type at 20 feet.
- b) see objects at 20 feet that individuals with eye problems see at 20 feet.
- c) see 20 letters on an eye chart from 20 feet.
- d) see objects at 20 feet that individuals with normal eyesight can see at 20 feet.
- e) only see objects that are not more distant than 20 feet.

192) The quantity of neurotransmitter that is released by a hair cell into the synapse with a sensory neuron increases

- a) in response to any mechanical stimulation of the hair cell.
- b) when the stereocilia of the hair cell are displaced away from the kinocilium.
- c) when the stereocilia of the hair cell are displaced toward the kinocilium.
- d) in response to mechanical deformation of the hair cell membrane.
- e) when the stereocilia are equally displaced to either side of the kinocilium.

193) Parkinson's disease manifests which of the following abnormalities?

- a) The motor cortex ceases receiving messages from sensory neurons.
- b) Axons that synapse in the thalamus no longer convey messages to the motor cortex.
- c) Excitatory neurons in the basal nuclei become more active, leading to faulty control of voluntary movements.
- d) GABA is released by neurons in excessive amounts

194) Which of the following motor pathways remains uncrossed along its length?

- a) Anterior corticospinal tract
- b) Lateral corticospinal tract
- c) Vestibulospinal tract
- d) Tectospinal tract

195) The reasoning behind the fact that bees are able to see ultraviolet light that humans cannot see, and dogs can respond to sounds humans cannot hear, is due to the response called

- a) transduction.
- b) convection.
- c) translation.
- d) conduction.

e) none of the above

196) Taste receptors are sensitive to dissolved chemicals but insensitive to pressure. This is due to

- a) receptor tactile habituation.
- b) axon potentials.
- c) receptor specificity.
- d) receptor gentility.
- e) all of the above

197) Pain receptors are to _____ as temperature receptors are to _____.

- a) baroreceptors; chemoreceptors
- b) nociceptors; thermoreceptors
- c) baroreceptors; nociceptors
- d) chemoreceptors; nociceptors
- e) baroreceptors; thermoreceptor

198) Peripheral adaptation _____ the amount of information that reaches the CNS.

- a) stabilizes
- b) neutralizes
- c) decreases
- d) increases
- e) all of the above

199) Which of the following help to protect the brain?

- a) the blood-brain barrier.
- b) the bones of the cranium.
- c) the cranial meninges.
- d) the CSF
- e) all of the above

200) Which cranial nerve carries sensory and motor signals between the brain and many internal organs?

- a) II (Optic)
- b) X (Vagus)
- c) V (Trigeminal)
- d) VII (Vestibulocochlear)
- e) XII (Hypoglossal)