

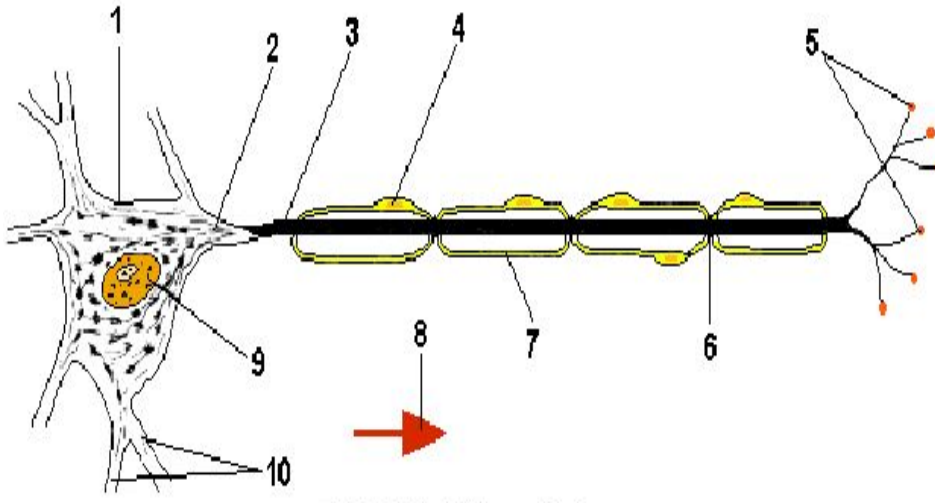
mangothecat's Anatomy & Physiology Practice Test

2016-2017: Nervous, Sense Organs, Endocrine

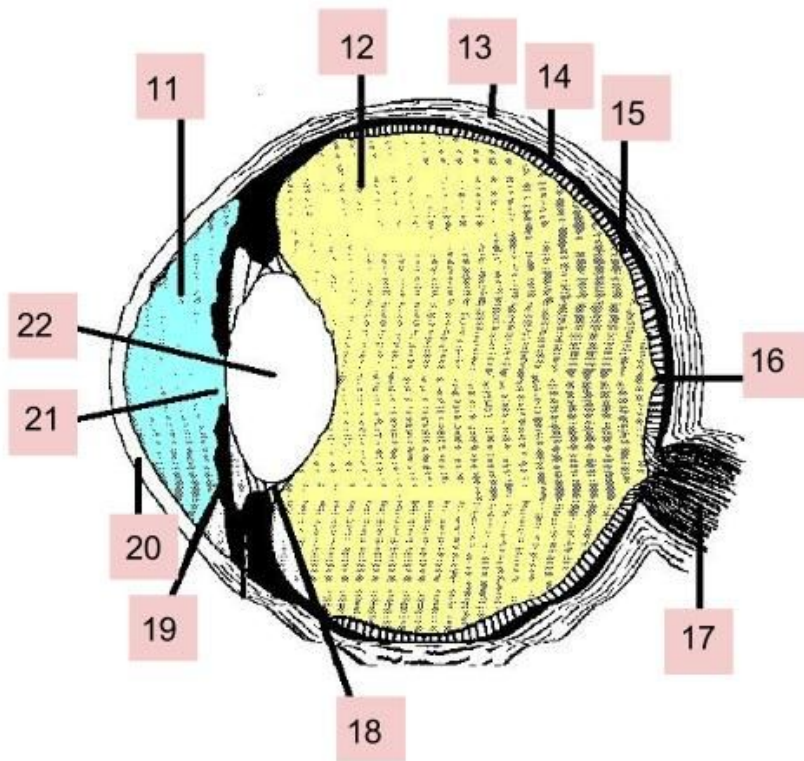
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Name: _____
 Score: ____ /110

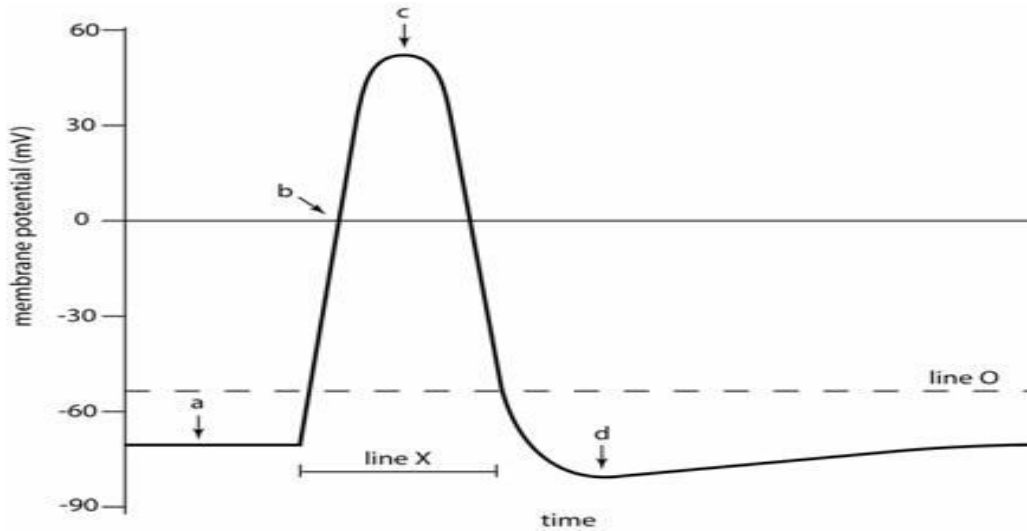
Part I: Labeling (1 pt each)



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- 22.



Part II: Fill in the blanks: Physiological Processes (½ point each)



The graph above shows how the membrane potential of a given point inside an axon changes over the course of an action potential. (Terms may be used more than once!)

- A. Resting state: all voltage-gated channels are closed, but (23)_____ channels are open.
- B. (24)_____ phase: (25)_____ channels open as the membrane is depolarized by a local graded potential. This increases the permeability of (26)_____ ions drastically and makes the cell interior more positive. Once the membrane potential has reached a level called the (27)_____ (shown as line O), depolarization becomes self generating and an action potential has been formed.
- C. (28)_____ phase: (29)_____ channels inactivate and (30)_____ channels open. (31)_____ ions rush out of the cell, following the electrochemical gradient. This causes the cell interior to become more negative.
- D. (32)_____ phase: (33)_____ channels remain open longer than needed to restore the resting membrane potential, causing the membrane potential to be more negative than the resting membrane potential. The (34)_____ channels close soon after. The ion distribution has changed and is reset by the (35)_____ pumps.

36. Why do action potentials always propagate away from their point of origin? (4 points)

Cyclic AMP Signaling Mechanism

- a. The hormone binds to its receptor on the cell membrane, causing the receptor to change shape. This allows the receptor to bind to a nearby inactive (37)_____. The (38)_____ is activated when the (39)_____ bound to it is displaced by the high energy compound (40)_____.
- b. The activated (41)_____ then binds to and activates the effector enzyme (42)_____. The (43)_____ inactivates when the (44)_____ bound to it is hydrolyzed into (45)_____.
- c. The effector enzyme converts (46)_____ into (47)_____, which then triggers a series of chemical reactions (such as stimulating cell secretion, opening ion channels, etc) by activating (48)_____.

49. What is another second-messenger system that hormones use to communicate with its target cell? (1 point)

50. Define hormone: (4 points)

51. What is the half life of a hormone? (2 points)

Write the hormone that most fits the description. (1pt each)

52. _____ Stimulates milk production

53. _____ Stimulates kidney tubule cells to reabsorb water

54. _____ Raises blood pressure by increasing the amount of water and sodium reabsorbed into the bloodstream.

55. _____ Lowers blood Ca^{2+} levels

56. _____ Raises blood Ca^{2+} levels

57. _____ Stimulates uterine contractions and initiates labor

58. _____ Manages stress and metabolizes glucose and fat

59. _____ Stimulates ovarian follicle maturation and estrogen production in females; stimulates sperm production in males

Part III: T/F: If the statement is true, write true. If the statement is false, write a term that replaces the bolded term that makes the statement true. (1 point each)

Ex: Ron Weasley **Harry Potter** married Hermione Granger.

60. _____ Motor neurons are also known as **afferent** neurons because they carry impulses away from the central nervous system.
61. _____ A bundle of neuron processes in the peripheral nervous system is called a **tract**.
62. _____ The cell membrane of a neuron is **more** permeable to potassium than to sodium
63. _____ **White** matter is the regions of the brain and spinal cord that contain dense collections of myelinated fibers.
64. _____ Elevated ridges of brain tissue are called **sulci**.
65. _____ The primary motor cortex is located in the **postcentral** gyrus of the each hemisphere.
66. _____ The lateral and medial geniculate bodies, important visual and auditory relay centers, are located on the **hypothalamus**.
67. _____ The cell bodies of **sensory** neurons are found in the dorsal horn of the spinal cord.
68. _____ The longest and thickest nerve in the human body is the **femoral** nerve.
69. _____ The posterior segment of the eye is filled with **vitreous** humor.
70. _____ The ciliary muscles contract, causing the lens to recoil and bulge out so that the eye is adjusted for **close vision**
71. _____ **Maculae** mostly respond to angular/rotatory acceleration rather than linear acceleration.
72. _____ Bitter taste is usually produced by **acidic** substances.
73. _____ **Circumvallate** papillae are mushroom shaped and are scattered over the entire surface of the tongue.
74. _____ The pineal gland mainly secretes **melatonin**.
75. _____ Thyroid hormones are **lipid** soluble.
76. _____ Vasopressin is secreted by the **anterior** pituitary gland.

Part IV: Multiple Choice (1 point each)

77. What type of neuron would be found in the retina of the eye or in the olfactory mucosa?
- a) multipolar neuron
 - b) motor neuron
 - c) bipolar neuron
 - d) unipolar neuron
78. The pumping of the heart is regulated by the:
- a) Autonomic nervous system
 - b) Somatic nervous system
 - c) Voluntary nervous system
 - d) Sensory nervous system
79. The sites of protein synthesis in a neuron are called:
- a) Nodes of Ranvier
 - b) Neurofibrils
 - c) Myelin sheaths
 - d) Nissl bodies
80. Which neurotransmitter passes through the neuromuscular junction between a motor neuron and a skeletal muscle?
- a) Serotonin
 - b) Epinephrine
 - c) Norepinephrine
 - d) Acetylcholine
81. What is the period of time after an action potential begins in which an excitable cell cannot generate another action potential, even with a very strong stimulus?
- a) absolute refractory period
 - b) relative refractory period
 - c) depolarization period
 - d) polarization period
82. Each lateral ventricle of the brain is connected to the third ventricle by:
- a) Cerebral aqueduct
 - b) Canal of Schlemm
 - c) Foramen of Monro
 - d) Jugular foramen

83. Where is the primary visual cortex located?
- a) Occipital lobe
 - b) Insula
 - c) Temporal lobe
 - d) Parietal lobe
84. Which of the following structures is found in the diencephalon?
- a) Medulla oblongata
 - b) Hypothalamus
 - c) Pons
 - d) Cerebellum
85. Cerebrospinal fluid is absorbed into the bloodstream by:
- a) Dura mater
 - b) Ependymal cells
 - c) Arbor vitae
 - d) Arachnoid villi
86. Patients with Parkinson's disease have low levels of which neurotransmitter?
- a) Dopamine
 - b) Epinephrine
 - c) Norepinephrine
 - d) Acetylcholine
87. Which of the following is a pain suppressing neurotransmitter?
- a) Acetylcholine
 - b) Glutamate
 - c) GABA
 - d) Enkephalin
88. How many pairs of spinal nerves to humans have?
- a) 28
 - b) 29
 - c) 30
 - d) 31
89. Alfred was playing Pokemon Go, the most popular mobile game (as of July 2016), while driving (bad idea) and crashed into a tree. He suffered a fractured cribriform plate and may have also injured which cranial nerve?
- a) I
 - b) III
 - c) IV
 - d) X

90. Which cranial nerve innervates muscles of mastication (chewing)?

- a) II
- b) V
- c) VII
- d) XI

(Bonus 1 point) What is the inflammation of this nerve called?

91. Which cranial nerves innervate taste buds?

- a) IV, V, VI
- b) VI, VII, X
- c) VII, IX, X
- d) IX, X, XII

92. The pituitary gland is located in the sella turcica of the:

- a) Sphenoid bone
- b) Ethmoid bone
- c) Maxilla
- d) Temporal bone

93. What type of cell in the anterior lobe of the pituitary gland produces growth hormone?

- a) Gonadotroph
- b) Lactotroph
- c) Corticotroph
- d) Somatotroph

94. Which of the following hormones causes blood sugar to rise?

- a) Insulin
- b) Glucagon
- c) Cortisol
- d) Parathyroid hormone

95. The release of most hormones are regulated by the:

- a) Positive feedback loop
- b) Negative feedback loop
- c) Hilton's Law
- d) Starling's Equilibrium

96. The pituitary gland is connected to the hypothalamus by the:

- a) Putamen
- b) Hypophyseal portal
- c) Corpus callosum
- d) Infundibulum

Part V: Miscellaneous

97. Where is cerebrospinal fluid usually removed for testing? Why is this the ideal location to perform this procedure? What is this procedure called? (4 points)

98. Name at least four types of sensory receptors. (4 points)

99. Bobby fell asleep while watching a movie. When he woke up, the movie had ended and it was pitch black in the theater. Bobby quickly rushed out of the theater and into the bright sunlight, which momentarily blinded him. Explain why in as much detail as possible. (Here are suggested terms to put in your response: sensitivity, photopigment, rods, cones.) (6 points)

Put the following structures in the order tears flow through them after being produced by the lacrimal gland: lacrimal canaliculi, lacrimal sac, excretory ducts, nasolacrimal duct, lacrimal punctum. (½ point each)

100. _____

101. _____

102. _____

103. _____

104. _____

If the following is a sympathetic response, write S on the blank. If the following is a parasympathetic effect, write P on the blank. (½ point each)

105. _____ Dilation of pupils

106. _____ Increased blood pressure

107. _____ Urination

108. _____ Constriction of blood vessels

109. _____ Glandular secretion

110. _____ Increased blood glucose levels

YEY YOU HAVE REACHED THE END OF THIS TEST! :D