

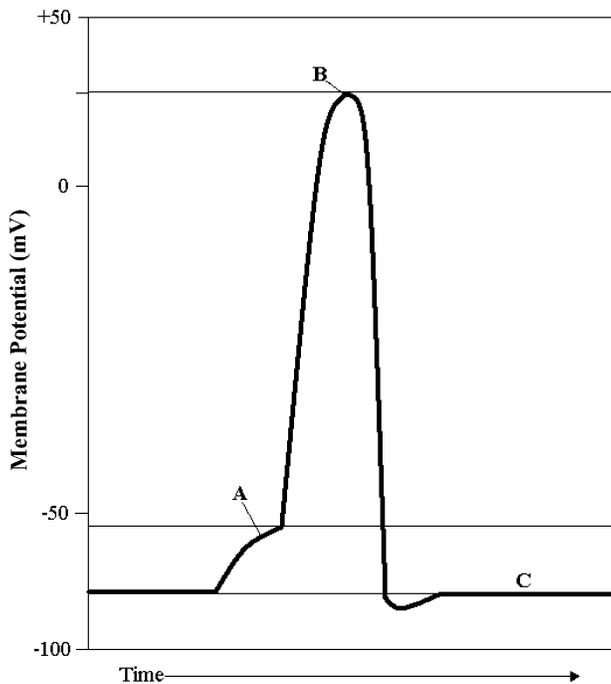
Student #1 _____

Student #2 _____

1. If the smell of food cooking causes activation of the salivary glands, which system will cause inhibition of the secretion?

- A) Sympathetic B) Digestive
C) Parasympathetic D) Somatic nervous
E) Central nervous

2. Base your answer to the following question on the image below.



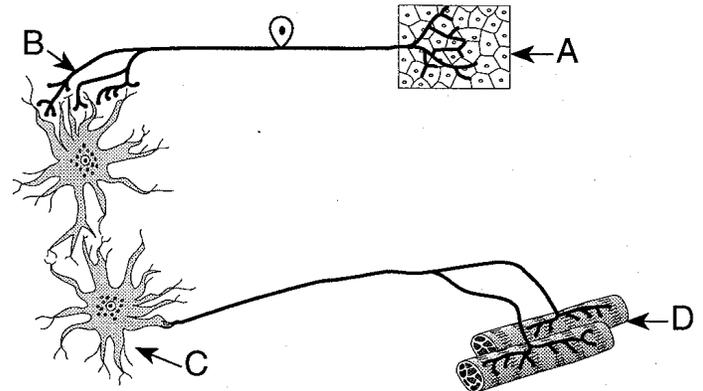
The threshold potential indicated by letter A requires which of the following?

- A) Diffusion of K^+ out of the cell.
B) Diffusion of Na^+ up its chemical gradient.
C) Closed Na^+ channels.
D) ATP to open K^+ channels.
E) Opening of gated Na^+ channels.

3. All sensory receptors are characterized by

- A) their location within the body
B) how they respond to stimuli
C) the amount of response they produce
D) the rate of detection of the stimuli
E) the type of energy they transduce

Base your answers to questions 4 and 5 on the image below.



4. To get from letter A to D, the signal must go through the

- A) autonomic nervous system
B) sympathetic nervous system
C) peripheral nervous system
D) sensory system
E) endocrine system

5. Letter D represents which of the following?

- A) Effector cells B) Nerves
C) Sensory receptors D) Axons
E) Ganglion

6. The outer ear consists of the pinna, which functions to

- A) equalize the pressure
B) house hair cells that bend with respect to direction of sound
C) transduce the energy from sound vibrations into action potentials
D) collect and channel sound waves to the eardrum
E) maintain equilibrium

7. The liquid that fills the anterior cavity of the eye is the

- A) aqueous humor B) vitreous humor
C) conjunctiva D) sclera
E) choroid

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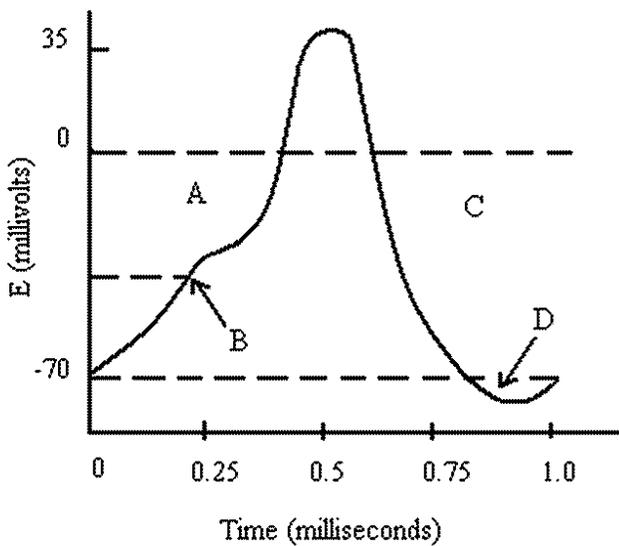
8. Within the eye, the iris functions to
- A) distinguish between wavelengths of color entering the eye
 - B) prevent glaucoma
 - C) divide the eye into two cavities
 - D) regulate the light entering the pupil
 - E) change shape to focus on objects in the distance
9. The primary visual cortex is located in which part of the cerebrum?
- A) Temporal lobe B) Occipital lobe
 - C) Parietal lobe D) Cerebellum
 - E) Optic chiasm
10. In the dark, the light-absorbing pigment molecule, rhodopsin, is
- A) active causing the rod cell membrane to be impermeable to sodium
 - B) responsible for the activation of cones in the retina
 - C) active causing the rod cell to be depolarized
 - D) active causing the rod cell to increase the release of glutamate
 - E) inactive
11. Light focused on the optic disk of the retina would
- A) cause brain damage
 - B) change the shape of the lens
 - C) cause the ciliary muscles to relax
 - D) not be detected
 - E) be detected by the rods
12. Hair cells are important mechanoreceptors because
- A) they regulate body temperature
 - B) their specificity allows them to respond to direction, strength, and speed of movement
 - C) they are located on the epidermis and can sense pain
 - D) they can detect visible light, electricity, and magnetism
 - E) their presence on the tongue plays a key role in how we perceive sweet and sour tastes
13. All of the following are true about the function of neurotransmitters EXCEPT
- A) they bind to chemically-gated ion channels
 - B) they can produce different effects on different cell types
 - C) they only function in the CNS
 - D) they are stored in cytoplasmic vesicles
 - E) they can be inhibitory or excitatory
14. The pump responsible for maintaining the ionic differences in and out of a neuron functions to
- A) concentrate Cl^- inside the cell
 - B) concentrate K^+ inside the cell and Na^+ outside
 - C) transport Na^+ into the cell using ATP
 - D) concentrate Na^+ inside the cell and K^+ outside
 - E) transport K^+ out of the cell using ATP
15. With regards to a neuron, the resting potential of an animal cell is
- A) negatively charged with respect to the outside of the cell due to K^+ movement
 - B) positively charged due to the constant diffusion of Cl^- out
 - C) constant during an action potential
 - D) positively charged with respect to the outside of the cell due to the diffusion of Na^+
 - E) 0 mV
16. In which order does an external stimulus travel through the nervous system?
- A) effector – efferent nerve – interneuron – afferent nerve – sensory cell
 - B) retina – optical nerve – occipital lobe – motor neuron – skeletal muscle
 - C) taste bud – afferent nerve – spinal cord – motor neuron – astrocyte
 - D) hair cell – efferent nerve – medulla oblongata – sensory neuron – stapes
 - E) epidermal cell – motor neuron – cerebellum – efferent nerve – iris

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17. Which of the following structure and function is INCORRECTLY paired?

- A) sclera - provides support and protection for inner contents of the eye
- B) pupil - allows light to enter the eye
- C) cones - detect color
- D) rods - detect light and dark
- E) iris - focuses the image

18. Base your answer to the following question on the graph below, which represents the sequence of events involved in the transmission of an impulse in a neuron.



Which of the following statements regarding point D are correct?

- I. The neuron is in the refractory period
- II. The neuron is in a state of repolarization
- III. The membrane is only permeable to potassium

A) I

B) II

C) III

D) I and II

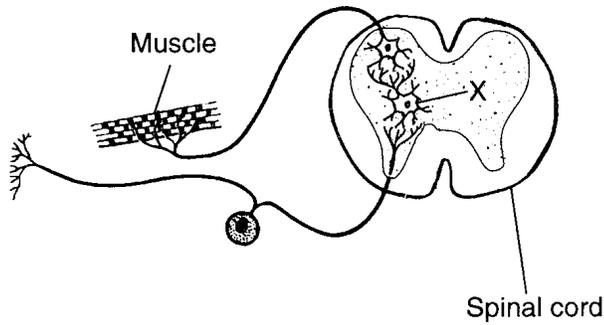
E) I and III

19. If you were being chased by a bear, the sympathetic nervous system would be stimulated causing all of the following to occur EXCEPT

- A) increase digestion
- B) constrict arteries
- C) increase heart rate
- D) increases secretion from sweat glands
- E) dilates eyes

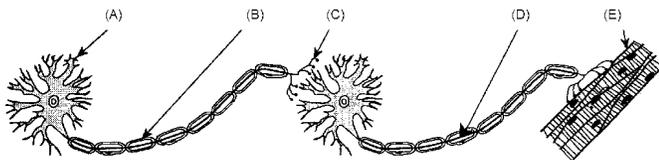
20. The transmission of an impulse by a nerve cell is described as

- A) intensive response
- B) graded response
- C) all-or-none
- D) refractory
- E) constant



21. The structure labeled X is
- A) an interneuron
 - B) grey matter
 - C) white matter
 - D) a sensory neuron
 - E) a motor neuron

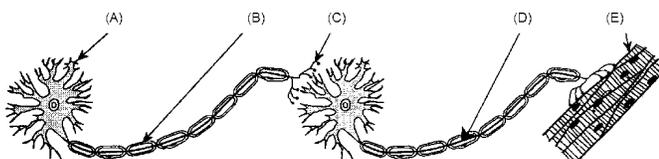
22. Base your answer on the diagram below.



Demyelination of this structure results in faulty transmission of impulses.

- A) A
- B) B
- C) C
- D) D
- E) E

23. Base your answer on the diagram below.



Acetylcholine is released from the synaptic vesicles located at this site.

- A) A
- B) B
- C) C
- D) D
- E) E

24. The temporal lobe of the cerebral cortex is NOT involved in which of the following senses?

- A) Sight
- B) Taste
- C) Hearing
- D) Olfaction
- E) Gustation

25. In the brain, the region that controls blood pressure, cardiac rate, and respiratory functions is called the

- A) medulla
- B) temporal lobe
- C) occipital lobe
- D) pons
- E) hypothalamus

26. Select the statement that accurately pairs the structure with its function.

- A) The semicircular canals sense sound
- B) The pinna transmits sound waves from the outer ear to the inner ear.
- C) The vestibule transmits sound waves from the outer ear to the inner ear.
- D) The tympanum controls body balance.
- E) The cochlea controls body balance.

27. The medulla oblongata in humans

- A) controls reflexes and connects the spinal cord to the brain
- B) processes visual information
- C) processes olfactory (smell) stimuli
- D) functions in memory, learning, and association
- E) regulates circadian rhythms and body temperature

28. The sleep-wake cycle in humans is an example of

- A) a circadian rhythm
- B) negative tropism
- C) nondisjunction
- D) anaerobic respiration
- E) symbiosis

29. The size of the pupil is controlled by the relaxation and contraction of which of the following?

- A) Iris
- B) Pupil
- C) Retina
- D) Sclera
- E) Pupil

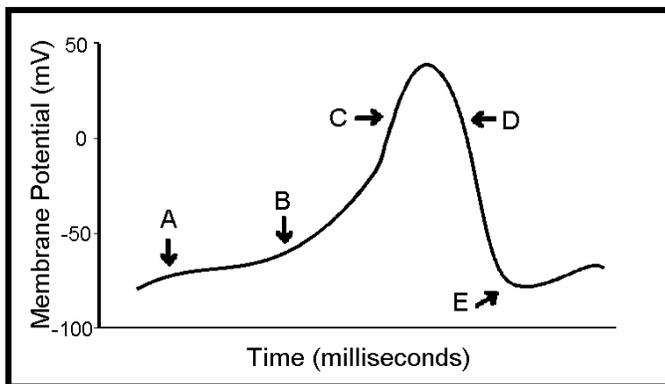
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Base your answers to questions 30 through 33 on the choices below.

- (A) Thalamus
- (B) Medulla
- (C) Hypothalamus
- (D) Cerebellum
- (E) Cerebrum

- 30. Controls higher-level thinking and reasoning
- 31. Controls and coordinates movement and balance
- 32. Integrates information from other parts of the brain
- 33. Controls involuntary actions such as breathing

Base your answers to questions 34 through 36 on the diagram below of an action potential in a neuron.



34. Resting potential

- A) A B) B C) C D) D E) E

35. Hyperpolarization of the neuron

- A) A B) B C) C D) D E) E

36. Repolarization of the neuron

- A) A B) B C) C D) D E) E

37. Some neurons possess Schwann cells that

- A) polarize the neuron by causing a net negative charge
- B) cause repolarization by restoring the original membrane polarization
- C) act as insulators and slow down the propagation of the impulse
- D) act as insulators and speed up the propagation of the impulse
- E) are calcium gates

38. Which of the following sequences describes the passage of an action potential in the neuron?

- A) axon, cell body, dendrite, synaptic cleft
- B) synaptic cleft, axon, dendrite, cell body
- C) dendrite, synaptic cleft, cell body, axon
- D) dendrite, cell body, axon, synaptic cleft
- E) synaptic cleft, axon, cell body, dendrite

39. Which of the following is a function of the cerebellum in the human brain?

- A) Abstract reasoning
- B) Hearing
- C) Vision
- D) Secretion of hormones
- E) Coordination of muscle activity

40. Which of the following is a function of the medulla in the human brain?

- A) Abstract reasoning
- B) Control of blood pressure
- C) Hearing processes
- D) Vision processes
- E) Memory

41. Body balance is controlled by cells found in the ear's

- A) eardrum B) cochlea
- C) tympanum D) vestibule
- E) pinna

42. Which statement about eye receptors and their function is correct?

- A) cones - color discrimination
- B) cones - twilight vision
- C) lens - control amount of light
- D) rods - color discrimination
- E) rods - light refraction

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43. Which of the following is NOT a sympathetic action of the autonomic nervous system?
- A) Acceleration of heartbeat
 - B) Dilation of arteries
 - C) Dilation of pupils
 - D) Relaxation of the bladder
 - E) Dilation of the bronchial passages
44. Which of the following is NOT a true statement about brain function in humans?
- A) The cerebellum functions in equilibrium.
 - B) The thalamus is a relay center for sensory input.
 - C) The cerebrum functions in learning association and memory.
 - D) The midbrain deals with awareness of body/limb position and movement.
 - E) The hypothalamus regulates many activities including body temperature, emotions, food intake, and some hormone secretion.
45. The synapse is the
- A) unit of function of the nervous system
 - B) support neuron
 - C) receiver of signals
 - D) junction between the axon of one neuron and the dendrite of the next neuron in a line
 - E) sender of signals
46. Neurons that conduct signals toward the central nervous system are classified as
- A) motor
 - B) afferent
 - C) efferent
 - D) associative
 - E) internuncial
47. Which of the following five components of a reflex arc detects the stimulus that is being reacted to?
- A) effector
 - B) motor neuron
 - C) receptor
 - D) sensory neuron
 - E) spinal cord
48. Neuroglial cells make up which of the following kinds of tissue
- A) connective
 - B) epithelial
 - C) nerve
 - D) muscle
 - E) vascular
49. Which of the following explains why a goiter forms in the absence of iodine?
- A) Elevated levels of Ca^{2+} within the thyroid gland.
 - B) Decreased levels of PTH within the blood.
 - C) Increased levels of T_3 in the thyroid glands.
 - D) Increased secretion of TSH by the pituitary gland.
 - E) Increased levels of T_4 within muscle cells.
50. In response to life-threatening danger, the release of epinephrine and norepinephrine from the adrenal glands begins the breakdown of fatty acids from adipose cells. Which of the following reasons best explains why this event occurs?
- A) To decrease the overall mass of the organism.
 - B) To increase the availability of energy sources.
 - C) There is a decreased need for bile salts.
 - D) To increase the secretion of lipase.
 - E) Fatty acids will decrease the activity of the liver.

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Base your answers to questions **51** through **55** on the choices listed below. Select the choice that best fits the description given. Each choice may be used once, more than once, or not at all within this group.

- (A) Estrogen
- (B) Follicle-stimulating hormone
- (C) Luteinizing hormone
- (D) Oxytocin
- (E) Progesterone

51. Responsible for uterine contraction, and for milk production and secretion from mammary glands along with prolactin

- A) A B) B C) C D) D E) E

52. Primarily responsible for development of female secondary sex characteristics

- A) A B) B C) C D) D E) E

53. Stimulates sperm production in testes

- A) A B) B C) C D) D E) E

54. Produced by the posterior pituitary gland

- A) A B) B C) C D) D E) E

55. Sustains pregnancy

- A) A B) B C) C D) D E) E

56. Base your answer to the following question on the 5 lettered headings listed below. Select the heading(s) that most directly applies to the subsequent statement. Each heading may be used once, more than once, or not at all within its group.

- (A) Glucagon
- (B) Insulin
- (C) Antidiuretic Hormone (ADH)
- (D) Calcitonin
- (E) Parathyroid hormone (PTH)

These hormones are released from the pancreas.

- A) A and B B) A and D
- C) B and C D) B and E
- E) C and E

57. Which of the following hormones causes a rise in plasma glucose concentration?

- A) Adrenaline B) Glucagon
- C) Cortisol D) Epinephrine
- E) All of the above

Base your answers to questions **58** through **60** on the diagram below.

Gland	Hormone	Hormone Function
Pituitary	Follicle-stimulating hormone	I
	Thyroid-stimulating hormone	J
A	E	Regulates metabolic rate
B	Adrenalin	K
Pancreas	F	Raises blood sugar level
	G	Lowers blood sugar level
C	Testosterone	L
D	H	Prepares uterus for implantation

58. Sections *B* and *K* should read, respectively,

- A) "Hypothalamus" and "growth and metabolism"
- B) "Thyroid" and "growth and metabolism"
- C) "Adrenal medulla" and "increase in blood pressure"
- D) "Adrenal cortex" and "growth and metabolism"
- E) "Hypothalamus" and "increase in blood pressure"

59. Section *F* should read

- A) "insulin" B) "glucagon"
- C) "parathormone" D) "calcitonin"
- E) "angiotensin"

60. Section *I* should read

- A) "maturation of ovarian follicle and production of sperm"
- B) "milk production and mammary gland growth"
- C) "secretion of thyroid hormones"
- D) "contraction of uterus"
- E) "increase of calcium in blood plasma"

61. Release of adrenaline is associated with each of the following EXCEPT

- A) increased heartbeat
- B) increased breathing rate
- C) increased blood pressure
- D) elevated clotting rate
- E) conversion of glucose to glycogen

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62. Oxytocin stimulates

- A) contraction of uterine smooth muscle
- B) secretion of thyroxin from the thyroid gland
- C) secretion of cortisone from the adrenal cortex
- D) secretion of testosterone in the testes
- E) follicle stimulation in the ovaries

Base your answers to questions 63 through 66 on the choices below.

- (A) Hypothalamus
- (B) Anterior pituitary
- (C) Posterior pituitary
- (D) Pineal gland
- (E) Ovary

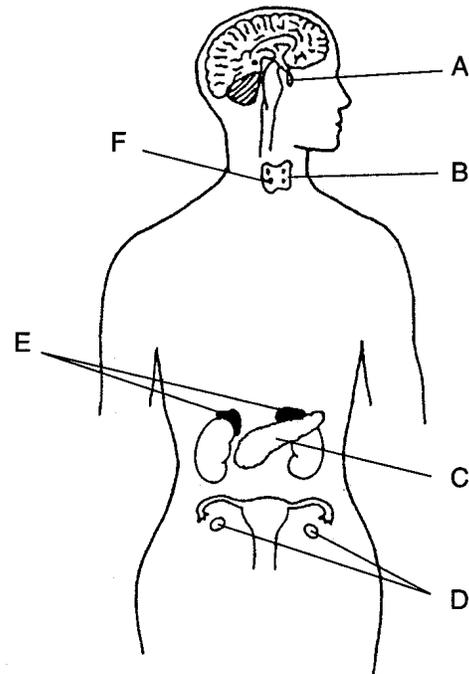
63. Secretes oxytocin and vasopressin

64. Secretes estrogen and progesterone

65. Releases GnRH which stimulates the release of FSH

66. Located at the base of the brain; secretes melatonin and helps regulate circadian rhythms

Base your answers to questions 67 through 70 on the picture below.



67. All of the following are released from gland A EXCEPT

- A) FSH
- B) TSH
- C) Aldosterone
- D) Growth hormone
- E) Prolactin

68. Which of the following is released from B?

- A) Parathyroid hormone
- B) Calcitonin
- C) Vasopressin
- D) Prolactin
- E) Epinephrine

69. Glucagon is produced in this organ

- A) A
- B) B
- C) C
- D) D
- E) E

70. Aldosterone is released from this gland

- A) A
- B) B
- C) C
- D) D
- E) E

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Base your answers to questions 71 and 72 on the chart below.

Gland	Hormone	Hormone Function
Pituitary	Follicle-stimulating hormone	I
	Thyroid-stimulating hormone	J
A	E	Regulates metabolic rate
B	Adrenalin	K
Pancreas	F	Raises blood sugar level
	G	Lowers blood sugar level
C	Testosterone	L
D	H	Prepares uterus for implantation

71. Hormone F is

- A) Glucagon
- B) Insulin
- C) Calcitonin
- D) Epinephrine
- E) Parathyroid Hormone

72. What gland is represented by the letter A?

- A) Parathyroid B) Thyroid
- C) Adrenal Cortex D) Adrenal Medulla
- E) Testes

Base your answers to questions 73 through 76 on the choices below.

- (A) Glucagon
- (B) Insulin
- (C) Norepinephrine
- (D) Parathyroid hormone
- (E) ACTH

73. Alpha cells secrete this hormone

74. Prepares an individual for the "fight or flight" reaction

75. Produced by neurosecretory cells in the anterior pituitary and secreted into the blood

76. Stimulates the liver and most other body cells to absorb glucose

Base your answers to questions 77 through 80 on the choices below.

- (A) Adrenal Cortex
- (B) Ovaries
- (C) Pancreas
- (D) Thymus
- (E) Parathyroid

77. Releases hormones that control blood sugar levels by promoting either the storage and oxidation of glucose or the release of glucose into the bloodstream

78. Secretes a hormone which stimulates formation of an antibody system

79. Releases the hormone that regulates the conversion of amino acids and fatty acids into glucose

80. Secretes the hormone which is responsible for regulating the amount of calcium and phosphate salts in the blood

81. A person eats a bag of candy and drinks a soda. Within minutes, an endocrine gland affects blood glucose homeostasis. What gland is affected and what hormone is emitted?

- A) pineal gland - melatonin
- B) adrenal gland - cortisones
- C) pancreas - insulin
- D) pancreas - glucagon
- E) pituitary gland - insulin

82. Compared to the nervous system, the endocrine system

- A) does not use receptors.
- B) may have a longer lasting effect.
- C) takes only seconds.
- D) is not essential to life.

83. An immune response that affects the myelin coating on axons throughout the spinal cord and brain, triggering inflammation and leaving scars, is

- A) muscular dystrophy.
- B) multiple sclerosis.
- C) Alzheimer disease.
- D) amyotrophic lateral sclerosis.

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84. Dopamine is secreted by the _____ and is deficient in _____ disease.
- A) cerebral cortex; Alzheimer
 - B) amygdala; Lou Gehrig's
 - C) medulla oblongata; Huntington
 - D) substantia nigra; Parkinson
85. Melinda has Parkinson disease. Her movements are slowing and she has difficulty initiating voluntary muscular actions. The region that is affected in her brain is the
- A) frontal lobe B) parietal lobe
 - C) basal ganglia D) amygdala
86. Graves disease, the most common form of hyperthyroidism, is caused by
- A) a lack of iodine
 - B) an excess of iodine
 - C) an improper diet
 - D) an autoimmune disorder
87. Simple goiter is most prevalent where soil lacks
- A) organic matter B) vitamins
 - C) iodine D) potassium
88. In diabetes mellitus,
- A) fatty acids and ketone bodies accumulate in the blood if untreated.
 - B) insulin must be taken or drugs given that help the body to utilize insulin.
 - C) the pancreas cannot produce insulin or the body cannot respond to it.
 - D) all of the above.
89. Type 1 diabetes mellitus is caused by
- A) excess sugar in the diet.
 - B) obesity.
 - C) a disorder of the immune system.
 - D) an effect of aging.
90. Diabetes mellitus results in
- A) protein in the urine
 - B) urine with high osmotic pressure
 - C) reduced urinary output
 - D) low blood sugar
91. Glucagon is also called a hypoglycemic factor.
- A) True B) False
92. A curvature defect of the lens or cornea in which some parts of an image are in focus on the retina and other parts are blurred and vision is distorted is called
- A) presbyopia. B) astigmatism.
 - C) hyperopia. D) myopia.
93. Brain waves during sleep are _____ waves.
- A) alpha B) beta C) theta D) delta
94. Brain waves associated with mental activity are
- A) alpha B) beta C) theta D) delta
95. A myelinated nerve fiber is _____, whereas an unmyelinated nerve fiber is _____.
- A) gray, and composing the gray matter of the brain and spinal cord; white, and composing the white matter of the brain and spinal cord
 - B) white, and composing the gray matter of the brain and spinal cord; gray, and composing the white matter of the brain and spinal cord
 - C) white, and composing the white matter of the brain and spinal cord; gray, and composing the gray matter of the brain and spinal cord
 - D) white, and composing the gray matter of the brain and spinal cord; red, and composing the white matter of the brain and spinal cord
96. Which of the following statements about steroid hormones are true?
- A) They are based on cholesterol molecules.
 - B) The receptor for these hormones is inside of the nucleus.
 - C) They are soluble to other lipids, such as those that make up the plasma membrane.
 - D) All of the above.
97. Steroid hormones
- A) are soluble in lipids.
 - B) combine with protein receptor molecules.
 - C) cause messenger RNA synthesis.
 - D) all of the above.

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98. Growth hormone

- A) enhances the movement of amino acids into cells.
- B) increases the rate of protein synthesis.
- C) increases the rate of fat metabolism.
- D) all of the above.

99. Secretion of insulin causes

- A) a decrease in the concentration of blood glucose.
- B) a decrease in the permeability of cell membranes to glucose.
- C) an increase in the breakdown of glycogen to release glucose.
- D) an increase in the concentration of blood glucose.

100. Which lobe of your brain are you using when you answer this question?

- A) Frontal
 - B) Parietal
 - C) Temporal
 - D) Occipital
-