Biology Exam 3

Student: ________________________________

1. On what part of the body is the tibialis anterior located?
   A. abdomen
   B. thigh
   C. lower leg
   D. upper arm
   E. forehead

2. _________ is the movement of a body part towards the midline of the body.
   A. Flexor
   B. Extensor
   C. Abductor
   D. Adductor
   E. Rotator

3. The functions of the skeletal muscles include:
   A. supporting the body and protecting internal organs
   B. providing movement and stabilizing joints
   C. maintaining a constant body temperature
   D. assisting movement in the cardiovascular and lymphatic systems
   E. all of the above responses are correct

4. The basic muscle tissues found in humans include:
   A. smooth muscle
   B. cardiac muscle
   C. skeletal muscle
   D. All of the choices are correct.

5. Muscles may be named as associated with:
   A. size
   B. shape
   C. attachment
   D. action and location
   E. all of the above
6. A muscle which assists another in an action is called a(n):
   A. antagonist
   B. secondary mover
   C. buccinator
   D. prime mover
   E. synergist

7. Identify the incorrect descriptor of muscles based upon size.
   A. maximus - largest muscle
   B. minimus - long muscle
   C. vastus - huge muscle
   D. brevis - short muscle
   E. all of the choices are correct

8. When Laura looked at the steak she noticed components of the muscle that she learned in her anatomy class called ________.
   A. Fascia
   B. Osteons
   C. H bands
   D. Fascicles
   E. Z bands

9. The end of the muscle that is attached to the stationary bone is called the _____.
   A. prime mover
   B. insertion
   C. fascia
   D. antagonist
   E. origin

10. Identify the incorrect statement.
    A. Cardiac muscle is found in the heart.
    B. Smooth muscle can be found in the muscles of the arm.
    C. Skeletal muscle can be found in the arms and legs.
    D. Smooth muscle lines blood vessels.
    E. All of the statements are correct.

11. A muscle which does most of the work during a specific action is called the:
    A. antagonist
    B. prime mover
    C. synergist
    D. secondary mover
    E. buccinators
12. The gangster movies call a dead person a stiff, rigor mortis is the proper name. How does this occur?

   A. Blood coagulates in the body causing stiffness.
   B. Tissues harden due to a lack of circulation.
   C. Without ATP, muscles remain fixed in their last state of contraction.
   D. With a lack of nerve signals the body tenses.
   E. None of the above.

13. The contractile unit of a muscle fiber is called a:

   A. myosin
   B. actin
   C. sarcomere
   D. sarcolemma
   E. None of the choices are correct.

14. The striations observed in skeletal and cardiac muscles are produced by:

   A. multiple nuclei in each cell
   B. multiple sarcomere alternations
   C. alternating actin filaments and calcium deposits
   D. alternating A bands and I bands
   E. alternating T bands and I bands

15. The contractile elements inside muscle cells are grouped into structures called:

   A. muscle fibers
   B. myofibrils
   C. fascia
   D. mitochondria
   E. transverse tubules

16. According to the sliding filament theory, myosin filaments pull actin filaments by means of ________.

   A. cross-bridges
   B. active transport
   C. passive transport
   D. expansion
   E. dystropin

17. _________ is a neurotransmitter that triggers muscle contraction.

   A. Myosin
   B. Tropomyosin
   C. Troponin
   D. Acetylcholine
   E. Dopamine
18. The release of this substance from the sarcoplasmic reticulum causes the filaments within the sarcomeres to slide past one another.

A. calcium
B. acetylcholine
C. potassium
D. ATPase
E. myoglobin

19. The smooth endoplasmic reticulum that is involved in the storage of calcium is known as the:

A. troponin
B. tropomyosin
C. sarcomeres
D. sarcoplasmic reticula
E. Golgi bodies

20. _________ is a protein that winds about an actin filament covering the binding sites for myosin.

A. Troponin
B. Tropomyosin
C. Keratin
D. Myoglobin
E. Collagen

21. The quickest method of providing ATP for muscle activity is:

A. anaerobic respiration
B. creatine phosphate conversion
C. creatine respiration
D. aerobic respiration
E. oxidative respiration

22. The brain and the spinal cord comprise the _________ nervous system.

A. somatic
B. parasympathetic
C. autonomic
D. peripheral
E. central

23. The peripheral nervous system includes the:

A. sensory nerves and motor nerves
B. brain and spinal cord
C. medulla oblongata and meninges
D. limbic system and parasympathetic division
E. none of the above
24. The _____ nerves send signals to smooth muscle, cardiac muscle, and glands.

A. visceral sensory
B. autonomic motor
C. somatic sensory
D. somatic motor
E. none of the above

25. The autonomic nervous system is divided into the _______ and _______ divisions.

A. visceral, somatic
B. somatic, visceral
C. sympathetic, parasympathetic
D. central, peripheral
E. afferent, efferent

26. In a neuron, ________ receive signals from sensory receptors.

A. axons
B. glial cells
C. nodes of Ranvier
D. Schwann cells
E. dendrites

27. Which of the following is a gap in the myelin sheath?

A. node of Ranvier
B. nerve impulse
C. Schwann cell
D. Pacinian corpuscle
E. interneuron

28. The outer covering of some axons which is composed of lipid material is called:

A. plasmalemma
B. sarcolemma
C. myelin sheath
D. endomysium
E. perimysium

29. Which of the following is not a neurotransmitter?

A. GABA
B. Dopamine
C. Insulin
D. Acetylcholine
E. Serotonin
30. Physiologically, resting potential indicates that the charge inside of the neuron is _____ compared to the outside.
   A. positive
   B. negative
   C. neutral
   D. changing
   E. none of the above

31. When a neuron is excited:
   A. positive charges move in
   B. the nerve fiber becomes depolarized
   C. an impulse begins to flow
   D. the nerve cell membrane becomes permeable to sodium
   E. All of the choices are correct.

32. In the nervous system, action potential is measured in millivolts (mV) and when action potential occurs, the membrane potential ranges from ________.
   A. -90mV to +20mV
   B. +65mV to -40mV
   C. -65mV to +40mV
   D. -30mV to +60mV
   E. none of the above

33. In nerve physiology, the time soon after an action potential has moved on and the sodium gates are unable to open is called the ________.
   A. refraction period
   B. latent period
   C. treppe
   D. action potential period
   E. refractory period

34. In order for sodium to be pumped out of a neuron, ________ must occur.
   A. simple diffusion
   B. osmosis
   C. an expenditure of energy
   D. potassium rush
   E. neurotransmitter release
35. A neuron repolarizes by _______ after it has been stimulated.
   
   A. producing ATP  
   B. the generation of a second impulse  
   C. growing a myelin sheath  
   D. the outward movement of potassium ions (K+)  
   E. generating an impulse in the opposite direction  

36. Neurotransmitters are stored in synaptic vesicles in the:
   
   A. neuron cell body  
   B. dendrite terminals  
   C. axon terminals  
   D. myelin sheath  
   E. synaptic gutter  

37. The ____________ serves to link the left and right hemispheres of the brain.
   
   A. arbor vitae  
   B. RAS  
   C. limbic system  
   D. pons  
   E. corpus callosum  

38. As the result of degeneration of specific neurons in the basal nuclei, Hugh developed ____________.
   
   A. Alzheimer's disease  
   B. Paget's disease  
   C. Parkinson disease  
   D. Hurler syndrome  
   E. Leishmania  

39. Scientists discovered by destroying or stimulating portions of the ____________, a laboratory rat would either eat itself to death or starve to death.
   
   A. thalamus  
   B. hypothalamus  
   C. cerebellum  
   D. pineal gland  
   E. arbor vitae
40. Greg's ____________ allowed him to recall the specific smells of his grandmother's house long after he moved away.

A. limbic system  
B. corpus callosum  
C. amygdala  
D. medulla oblongata  
E. hippocampus

41. The ________ plays a crucial role in learning and memory and the ________ plays a crucial role in the sensation of fear.

A. amygdala, hippocampus  
B. pons, cerebellum  
C. medulla oblongata, pons  
D. hippocampus, amygdala  
E. cerebellum, pons

42. Identify the danger/dangers of alcohol abuse.

A. pH of blood declines as it becomes acidic  
B. Krebs cycle does not operate properly  
C. fat accumulates in the liver; also, liver cells die  
D. immune system functioning declines  
E. All of the choices are correct.

43. __________ is a neurotransmitter that is considered "a feel good neurotransmitter" because it can affect moods.

A. GABA  
B. Acetylcholine  
C. Epinephrine  
D. Serotonin  
E. Dopamine

44. __________ are sensory receptors that respond to stimuli from outside the body and __________ are sensory receptors that respond to stimuli from inside the body.

A. Proprioceptors, pressoreceptors  
B. Pressoreceptors, proprioceptors  
C. Chemoreceptors, nociceptors  
D. Interoceptors, exteroceptors  
E. Exteroceptors, interoceptors
45. That nagging pain in the jaw served as a precursor that John's abscess was getting worse. The ______________ were letting him know about the potential problem.

A. proprioceptors  
B. nociceptors  
C. mechanoreceptors  
D. photoreceptors  
E. pressoreceptors

46. The chemoreceptors monitoring the pH of Tom's blood detected that the pH was lowering. In turn Tom began to:

A. breathe slower  
B. produce more urine  
C. conserve water  
D. breathe faster  
E. sweat

47. The process of sensation occurs:

A. when the nerve impulse is first triggered  
B. when the nerve impulse arrives at the cerebral cortex  
C. when the organism reacts to the nerve impulse  
D. when a nerve signal crosses the synapse  
E. none of the above

48. The process of stimuli interpretation seems to occur:

A. within highly specialized receptors  
B. in all receptors  
C. at synapses outside the central nervous system  
D. in the peripheral nervous system only  
E. in the central nervous system only

49. Meissner corpuscles and Krause end bulbs can be found in the:

A. fingertips  
B. nipples  
C. lips  
D. tongue  
E. all of the above
50. Many amputees describe having feelings or pain from the limb that was removed. This sensation is known as ________.

A. chronic pain
B. acute pain
C. phasic pain
D. tonic pain
E. phantom pain

51. Recently a fifth taste receptor called umami has been described. It may play a roll in the evolution of carnivory in humans because it is sensitive to the taste of:

A. plant material
B. salts
C. alkalines
D. meat
E. all of the above

52. The reason why you lick a sucker with the tip of your tongue is that:

A. the majority of sweet taste buds are found on the tip of the tongue
B. it is too big to place farther in your mouth
C. sour taste buds are mostly found on the tip of the tongue
D. umami taste buds are located at the tip of the tongue
E. none of the above

53. ___________ taste buds are found mostly on the sides of the tongue.

A. Sweet
B. Bitter
C. Umami
D. Salty
E. Sour

54. A Chinese buffet represents a unique taste experience that tantalizes all of the taste senses. In order to interpret the taste, the brain must produce a __________ of the multitude of tastes.

A. taste map
B. weighted average
C. dominance map
D. discrimination map
E. none of the above
55. The sense of smell is known as:
   A. gustation
   B. equilibrium
   C. olfaction
   D. compaction
   E. integration

56. Choose the CORRECT statement concerning anatomy of the eye.
   A. The sclera is the outer white fibrous layer.
   B. The fovea centralis is a region of dense cones.
   C. The cornea normally is transparent.
   D. The choroid absorbs light.
   E. All of the choices are correct.

57. The region of the eye known as the choroid ______.
   A. refracts light rays
   B. absorbs stray light rays
   C. transmits impulses to the brain
   D. makes color vision possible
   E. none of the above

58. The ________ is known as the white of the eye and serves to protect and support the eyeballs.
   A. choroid
   B. conjunctiva
   C. ciliary body
   D. sclera
   E. retina

59. The aperture of a camera is an opening that regulates the amount of light entering the camera, this
   feature is synonymous to the ________ of the eye.
   A. choroid
   B. pupil
   C. iris
   D. sclera
   E. retina

60. The posterior compartment of the eye behind the lens if filled with a viscous material called the _____
    humor.
   A. choroid
   B. aqueous
   C. ciliary
   D. vitreous
   E. optic
61. The area in the retina that is responsible for acute vision and that contains only cones is called the __________.
   
   A. optic nerve  
   B. fovea centralis  
   C. pupil  
   D. choroid  
   E. sclera  

62. The deep purple visual pigment of rods is:
   
   A. rhodopsin  
   B. retinal  
   C. vitamin A  
   D. carotene  
   E. pepsin  

63. ________ are visual receptors that function in low light and _______ are visual receptors responsible for color vision.
   
   A. Cones, rods  
   B. Rods, cones  
   C. Ciliaries, rods  
   D. Ciliaries, cones  
   E. none of the above  

64. The ________ secretes hormones that are released into the bloodstream to effect target cells.
   
   A. nervous system  
   B. circulatory system  
   C. immune system  
   D. lymphatic system  
   E. endocrine system  

65. __________ is the mechanism that helps maintain homeostasis in the body.
   
   A. Chemosynthesis  
   B. Positive feedback  
   C. Negative feedback  
   D. Internalization  
   E. None of the above
66. ______ glands that secrete products directly into the bloodstream without ducts and ______ glands possess ducts and secrete their products into their ducts.

A. Acinar, merocrine  
B. Endocrine, exocrine  
C. Sebaceous, ceruminous  
D. Exocrine, endocrine  
E. Accrine, acinar

67. Which of the following hormones is/are not secreted by the anterior pituitary?

A. growth hormone  
B. prolactin  
C. oxytocin  
D. adrenocorticotropic hormone  
E. thyroid stimulating hormone

68. The posterior pituitary gland produces:

A. oxytocin and rennin  
B. ADH and erythropoietin  
C. thymosin and epinephrine  
D. ADH and oxytocin  
E. prolactin and androgen

69. Epinephrine and norepinephrine are produced by the:

A. parathyroid  
B. adrenal cortex  
C. adrenal medulla  
D. anterior pituitary  
E. pineal gland

70. Insulin and glucagon are secreted by the ____________.

A. pineal gland  
B. gonads  
C. pancreas  
D. thymus  
E. hypothalamus

71. Pat could not understand why the male deer chased him around the petting zoo. However, upon further contemplation, he realized that his new musky cologne contained __________ that excited the deer.

A. peptides  
B. erythropoietin  
C. thymosin  
D. pheromones  
E. prolactin
72. Steroid hormones are derived from ________.
   A. glycogen
   B. glycolipids
   C. cholesterol
   D. amino acids
   E. mucopolysaccharides

73. The hypothalamus regulates the internal environment through the ________ nervous system.
   A. somatic
   B. parasympathetic
   C. visceral
   D. autonomic
   E. afferent

74. Mike was exhibiting excessive urine production or polyuria. This is a symptom of diabetes insipidus and
    is related to the inability of the posterior pituitary to produce the proper amount of ________.
    A. thymosin
    B. oxytosin
    C. antidiuretic hormone
    D. parathyroid hormone
    E. epinephrine

75. The hormone TSH produced by the anterior pituitary serves to:
    A. stimulate the adrenal cortex
    B. stimulate the gonads
    C. stimulate the thyroid gland
    D. stimulate the parathyroid gland
    E. inhibit the production of thymosin

76. Nathan was below the growth curve and was not able to produce the necessary amount of growth
    hormone. He was diagnosed with ________.
    A. acromegaly
    B. achondroplasia
    C. progeria
    D. pituitary dwarfism
    E. Hurler syndrome
77. Andre the Giant was abnormally tall, possessed a large hands and feet, and had prominent brow ridges, nose, and chin. This disorder began to manifest in childhood. It is now known that he suffered from a disorder known as ____________.

A. acromegaly  
B. achondroplasia  
C. progeria  
D. pituitary dwarfism  
E. gigantism

78. The hypothalamic-releasing hormones directly control the:

A. adrenal cortex  
B. thyroid  
C. anterior pituitary  
D. posterior pituitary  
E. pancreas

79. The _______ gland is the largest endocrine gland located in the neck region and attached to the trachea below the larynx.

A. pituitary  
B. parathyroid  
C. adrenal  
D. thyroid  
E. none of the above

80. The thyroid gland releases the hormones ____________.

A. thyroxine  
B. triiodothyronine  
C. calcitonin  
D. All of the choices are correct.

81. In some inland regions where seafood is not plentiful, people may suffer from an iodine deficiency known as _____.

A. myxedema  
B. Grave's disease  
C. progeria  
D. goiter  
E. Cushing's syndrome
82. The release of parathyroid hormone triggers:

A. an increase in stored calcium  
B. an increase in blood calcium  
C. an increase in thyroid hormones  
D. a decrease in phosphorus in bone  
E. an increase in prolactin

83. Osteoporosis and perhaps calcium kidney stones can result from _____.

A. hypothyroidism  
B. hyperthyroidism  
C. adrenoleukodystrophy  
D. hyperparathyroidism  
E. hypoparathyroidism

84. The adrenal glands sit atop the ______________.

A. liver  
B. gallbladder  
C. hypothalamus  
D. kidneys  
E. pancreas

85. _________ serve/serves to regulate salt/water balance and _________ serve/serves to regulate glucose levels.

A. Thymosin, epinephrine  
B. Epinephrine, norepinephrine  
C. Glucocorticoids, mineralocorticoids  
D. Mineralocorticoids, glucocorticoids  
E. ACTH, ADH

86. President John Kennedy exhibited a bronzing of the skin, weight loss, and dehydration. He was diagnosed with _____.

A. Addison disease  
B. Cushing syndrome  
C. Grave's disease  
D. Hurler syndrome  
E. Down syndrome
87. In an emergency situation where the rate of heartbeat decreases, a doctor would most likely administer an injection of:

A. insulin  
B. ACTH  
C. epinephrine  
D. thyrosin  
E. parathyroid hormone

88. The primary target organ of aldosterone is _______ where it regulates sodium and potassium balance.

A. the liver  
B. the pancreas  
C. the kidneys  
D. the bladder  
E. all of the above

89. Which statement is not true about the renin-angiotensin/aldosterone system?

A. renin is secreted when the blood volume is low  
B. renin converts angiotensin I into angiotensin II  
C. angiotensin II constricts arteries to increase blood pressure  
D. aldosterone causes the kidneys to reabsorb sodium  
E. aldosterone causes increased blood volume, therefore increased pressure

90. In ____________ the cells of the body especially those of the liver and muscles fail to take up glucose.

A. diabetes insipidus  
B. diabetes mellitus  
C. Addison disease  
D. Grave's disease  
E. none of the above

91. In ancient times physicians tasted the urine to diagnose ____________.

A. progeria  
B. Patu syndrome  
C. diabetes  
D. ichthyosis  
E. Grave's disease

92. Living a sedentary life style and too many sweets were responsible for Mr. Wilson developing ____________.

A. type I diabetes  
B. type II diabetes  
C. Graves' disease  
D. Cushing syndrome  
E. hypertrichosis
93. Perhaps seasonal depression syndrome and even onset of early puberty can be related to the _____.

A. thymus  
B. thyroid gland  
C. adrenal glands  
D. pineal gland  
E. leptin

94. The thymus aids the differentiation of _______.

A. erythrocytes  
B. T lymphocytes  
C. platelets  
D. B lymphocytes  
E. megakaryocytes

95. In humans, chromosome pairs 1-22 are called _______ and chromosome pair 23 is called _______.

A. gametes, autosomes  
B. autosomes, sex chromosomes  
C. somatosomes, gametosomes  
D. sex chromosomes, autosomes  
E. none of the above

96. Since Deborah was 36 years old and pregnant, Dr. Faulkenberry suggested that she have an amniocentesis and subsequent ___________ to see that the fetus has the full complement of chromosomes.

A. angiogram  
B. cross match  
C. angioplasty  
D. karyotype  
E. chorionic villus sampling

97. Sister chromatids are held together in a specific region called the _____________.

A. telomere  
B. chromomere  
C. mesomere  
D. centromere  
E. kinetochore

98. The process of programmed cell death is called:

A. karyokinesis  
B. cytokinesis  
C. apoptosis  
D. synapsis  
E. crossing over
99. A ____ is a group of symptoms that always occur together.

A. synapse  
B. chorea  
C. tetrad  
D. syndrome  
E. crossing over

100. Danielle was debating whether to have amniocentesis or chorionic villi sampling. Dr. Ferguson explained that the advantages of CVS include that:

A. it can be performed sooner in the pregnancy than amniocentesis and the results from karyotyping can be read at an earlier date  
B. there is a greater risk of spontaneous abortion than with amniocentesis  
C. CVS uses amniotic fluid  
D. amniocentesis gathers fewer cells  
E. None of the above

101. During the majority of a cell's life, it is in _________ that was once called the resting stage. However, today it is the interval of time between cell divisions.

A. metaphase  
B. cytokinesis  
C. interphase  
D. gap 2  
E. anaphase

102. In a non-dividing cell, the nucleus contains indistinct and diffuse chromatin, but in a dividing cell, these become short and thick and are called:

A. genes  
B. DNA  
C. chromosomes  
D. introns  
E. exons

103. The type of cellular nuclear division that produces two daughter cells with the same number and kind of chromosomes is called:

A. meiosis  
B. synthesis  
C. apoptosis  
D. mitosis  
E. synapsis
104. The process of mitosis is comprised of four stages. Which statement correctly places the stages in order?

A. anaphase, prophase, telophase, metaphase
B. prophase, telophase, metaphase, anaphase
C. prophase, metaphase, anaphase, telophase
D. telophase, metaphase, anaphase, prophase
E. prophase, telophase, anaphase, metaphase

105. Which statement is false concerning prophase?

A. prophase occurs after interphase
B. during prophase, chromosomes are randomly placed in the nucleus
C. during prophase, spindle fibers attach to the centromeres
D. during prophase the DNA is replicated
E. during prophase the chromosomes shorten and thicken

106. Which of the following events occurs during anaphase?

A. cytokinesis begins
B. chromosomes line up at the equator
C. chromosomes condense and become visible
D. DNA replication
E. separation of the sister chromatids occurs

107. Two daughter nuclei are formed from each parent cell during:

A. interphase
B. prophase
C. metaphase
D. anaphase
E. telophase

108. The indentation, or pinching in of the cell membrane, around the circumference of the cell during the end of mitosis is called the:

A. aster
B. centromere
C. centriole
D. cleavage furrow
E. synopsis
109. Jennifer asked, "Why does my dog always try to lick my scratches and cuts"? Since dogs have a high number of epidermal growth factors (EGF's) in their saliva they serve to:

A. inhibit meiosis  
B. inhibit cell division  
C. promote cell division  
D. promote meiosis  
E. none of the above  

110. The cellular process that requires two nuclear divisions, resulting in four daughter cells with half of the parent chromosomal number is:

A. mitosis  
B. meiosis  
C. apoptosis  
D. synapsis  
E. cytokinesis  

111. _______ are pairs of alike chromosomes that look alike and carry the same genes.

A. Tetrads  
B. Homologues  
C. Analogues  
D. Replicants  
E. Bifurcates  

112. Meiosis is very important for the production of gametes in order to:

A. provide for genetic variation  
B. ensure the proper number of chromosomes exist after fertilization  
C. produce gametes with the haploid number of chromosomes  
D. stabilize the number of chromosomes passed through the generations  
E. All of the above are correct.  

113. Many biologists emphasize that _____ between non-sister chromatids during synapsis is an important event because it will result in new combinations of genes.

A. centesis  
B. synapsis  
C. replication  
D. interkinesis  
E. crossing-over
114. Tetrads line up at the equator in which phase of meiosis:

A. metaphase I
B. anaphase I
C. telophase I
D. prophase I
E. none of the above

115. The second meiotic division is essentially mitosis, except that the resultant cells in which this division occurs are:

A. haploid
B. diploid
C. polyploid
D. somatic
E. aneuploid

116. __________ serve to eliminate excess genetic material in eggs.

A. Tetrads
B. Ootids
C. Polar bodies
D. Telomeres
E. Oogonia

117. Tina's identical twins were the result of:

A. two eggs and two sperm
B. one egg and two sperm
C. one egg and one sperm
D. two eggs and one sperm
E. none of the above

118. The diploid (2n) cells of the ovaries that begin the meiotic process are called:

A. primary oocytes
B. secondary oocytes
C. ootids
D. polar bodies
E. oogonia

119. The secondary oocyte begins meiosis II but stops at metaphase II and does not complete metaphase II unless:

A. hormones initiate anaphase II
B. the fertilization process begins
C. DNA replication is complete
D. crossing over is complete
E. None of the above
120. James and Jennifer were fraternal twins, this meant that they:

A. were the product of one egg and one sperm.
B. were the product of one egg and two sperm
C. were the product of two eggs and two sperm.
D. were the product of a nondisjunction event.
E. were the product of a polyspermic event.

121. Nondisjunction occurs when ____________.

A. homologous pairs do not separate in meiosis I.
B. crossing-over occurs in sister chromatids.
C. sister chromatids do not separate in mitosis or meiosis II.
D. the tetrads form.
E. Both A and C are correct.

122. The inactive X chromosome is distinguishable by the presence of a ____________.

A. transposon
B. translocation body
C. Barr body
D. Monosomy body
E. Williams body

123. Which of the following is a true statement about Trisomy 21?

A. is a result of non-disjunction of the X chromosome
B. is typified by having a cry sound like that of a cat
C. is more likely to occur in children of older women
D. results from having a XYY karyotype
E. females are short, have a broad chest, and a webbed neck

124. Jan observed the following traits in her patient with Turner syndrome.

A. nonfunctional ovaries
B. short stature
C. webbed neck
D. wide chest with widely separated nipples
E. all of the above

125. There is a misconception that individuals with _________ are likely to be criminally aggressive.

A. William's syndrome
B. Jacob's syndrome
C. Hurler syndrome
D. Cri du Chat
E. Klinefelter syndrome
Biology Exam 3 Key

1. On what part of the body is the tibialis anterior located?

A. abdomen  
B. thigh  
C. lower leg  
D. upper arm  
E. forehead

The tibialis anterior is located on the lower leg.

Chapter reference: 12  
Figure/section reference: 12.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 12 #20  
Question type: Multiple choice  
Topic Area: Muscular System

2. __________ is the movement of a body part towards the midline of the body.

A. Flexor  
B. Extensor  
C. Abductor  
D. Adductor  
E. Rotator

Adduction is the movement of a body part towards the midline of the body.

Chapter reference: 12  
Figure/section reference: 12.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 12 #21  
Question type: Multiple choice  
Topic Area: Muscular System
3. The functions of the skeletal muscles include:

A. supporting the body and protecting internal organs
B. providing movement and stabilizing joints
C. maintaining a constant body temperature
D. assisting movement in the cardiovascular and lymphatic systems
E. all of the above responses are correct

The functions of the skeletal muscles include: supporting the body and protecting the internal organs; providing movement and stabilizing joints; maintaining a constant body temperature; and assisting movement in the cardiovascular and lymphatic systems.

4. The basic muscle tissues found in humans include:

A. smooth muscle
B. cardiac muscle
C. skeletal muscle
D. All of the choices are correct.

The basic muscle tissues found in humans include: smooth muscle, cardiac muscle, and skeletal muscle.
5. Muscles may be named as associated with:
   A. size
   B. shape
   C. attachment
   D. action and location
   E. all of the above

Muscles may be named as associated with: size, attachment, shape, action, and location.

6. A muscle which assists another in an action is called a(n):
   A. antagonist
   B. secondary mover
   C. buccinator
   D. prime mover
   E. synergist

A muscle which assists another muscle in an action is called a synergist.

7. Identify the incorrect descriptor of muscles based upon size.
   A. maximus - largest muscle
   B. minimus - long muscle
   C. vastus - huge muscle
   D. brevis - short muscle
   E. all of the choices are correct

Minimus does not refer to long muscle, it refers to a very small muscle.
8. When Laura looked at the steak she noticed components of the muscle that she learned in her anatomy class called ________.

A. Fascia  
B. Osteons  
C. H bands  
D. Fascicles  
E. Z bands

When Laura looked at the steak she noticed components of the muscle that she learned in her anatomy class called fascicles.

9. The end of the muscle that is attached to the stationary bone is called the _____.

A. prime mover  
B. insertion  
C. fascia  
D. antagonist  
E. origin

The end of the muscle that is attached to the stationary bone is called the origin.
10. Identify the incorrect statement.

A. Cardiac muscle is found in the heart.

B. Smooth muscle can be found in the muscles of the arm.

C. Skeletal muscle can be found in the arms and legs.

D. Smooth muscle lines blood vessels.

E. All of the statements are correct.

Smooth muscle does not comprise the muscle of the arm.

11. A muscle which does most of the work during a specific action is called the:

A. antagonist

B. prime mover

C. synergist

D. secondary mover

E. buccinators

The muscle that does most of the work during a specific action is called the prime mover.

12. The gangster movies call a dead person a stiff, rigor mortis is the proper name. How does this occur?

A. Blood coagulates in the body causing stiffness.

B. Tissues harden due to a lack of circulation.

C. Without ATP, muscles remain fixed in their last state of contraction.

D. With a lack of nerve signals the body tenses.

E. none of the above.

Without ATP, muscles remain fixed in their last state of contraction.
13. The contractile unit of a muscle fiber is called a:

A. myosin
B. actin
C. sarcomere
D. sarcolemma
E. None of the choices are correct.

The contractile unit of a muscle fiber is called a sarcomere.

14. The striations observed in skeletal and cardiac muscles are produced by:

A. multiple nuclei in each cell
B. multiple sarcomere alternations
C. alternating actin filaments and calcium deposits
D. alternating A bands and I bands
E. alternating T bands and I bands

The striations observed in skeletal and cardiac muscles are produced by alternating A bands and I bands.

15. The contractile elements inside muscle cells are grouped into structures called:

A. muscle fibers
B. myofibrils
C. fascia
D. mitochondria
E. transverse tubules

The contractile elements inside muscle cells are grouped into structures called myofibrils.
16. According to the sliding filament theory, myosin filaments pull actin filaments by means of ________.

A. cross-bridges  
B. active transport  
C. passive transport  
D. expansion  
E. dystropin

According to the sliding filament theory, myosin filaments pull actin filaments by means of cross-bridges.

17. ________ is a neurotransmitter that triggers muscle contraction.

A. Myosin  
B. Tropomyosin  
C. Troponin  
D. Acetylcholine  
E. Dopamine

Acetylcholine is a neurotransmitter that triggers muscle contraction.
18. The release of this substance from the sarcoplasmic reticulum causes the filaments within the sarcomeres to slide past one another.

A. calcium  
B. acetylcholine  
C. potassium  
D. ATPase  
E. myoglobin

The release of calcium from the sarcoplasmic reticulum causes the filaments within the sarcomeres to slide past one another.

Chapter reference: 12  
Figure/section reference: 12.2  
Level of difficulty: Remember/Understand  
Mader - Chapter 12 #34  
Question type: Multiple choice  
Topic Area: Muscular System

19. The smooth endoplasmic reticulum that is involved in the storage of calcium is known as the:

A. troponin  
B. tropomyosin  
C. sarcomeres  
D. sarcoplasmic reticula  
E. Golgi bodies

The smooth endoplasmic reticulum that is involved in the storage of calcium is known as the sarcoplasmic reticulum.

Chapter reference: 12  
Figure/section reference: 12.2  
Level of difficulty: Remember/Understand  
Mader - Chapter 12 #35  
Question type: Multiple choice  
Topic Area: Muscular System
20. __________ is a protein that winds about an actin filament covering the binding sites for myosin.

A. Troponin  
B. Tropomyosin  
C. Keratin  
D. Myoglobin  
E. Collagen

Tropomyosin is a protein that winds about an actin filament covering the binding sites for myosin.

21. The quickest method of providing ATP for muscle activity is:

A. anaerobic respiration  
B. creatine phosphate conversion  
C. creatine respiration  
D. aerobic respiration  
E. oxidative respiration

The quickest method of providing ATP for muscle activity is creatine phosphate conversion.

22. The brain and the spinal cord comprise the __________ nervous system.

A. somatic  
B. parasympathetic  
C. autonomic  
D. peripheral  
E. central

The brain and the spinal cord comprise the central nervous system.
23. The peripheral nervous system includes the:

A. sensory nerves and motor nerves  
B. brain and spinal cord  
C. medulla oblongata and meninges  
D. limbic system and parasympathetic division  
E. none of the above

The peripheral nervous system includes the sensory nerves and motor nerves.

Chapter reference: 13  
Figure/section reference: Figure 13.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 13 #2  
Question type: Multiple choice  
Topic Area: Nervous System

24. The ______ nerves send signals to smooth muscle, cardiac muscle, and glands.

A. visceral sensory  
B. autonomic motor  
C. somatic sensory  
D. somatic motor  
E. none of the above

The autonomic motor nerves send signals to smooth muscle, cardiac muscle, and glands.

Chapter reference: 13  
Figure/section reference: Figure 13.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 13 #5  
Question type: Multiple choice  
Topic Area: Nervous System

25. The autonomic nervous system is divided into the _______ and ________ divisions.

A. visceral, somatic  
B. somatic, visceral  
C. sympathetic, parasympathetic  
D. central, peripheral  
E. afferent, efferent

The autonomic nervous system is divided into the sympathetic and parasympathetic divisions.

Chapter reference: 13  
Figure/section reference: Figure 13.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 13 #6  
Question type: Multiple choice  
Topic Area: Nervous System
26. In a neuron, _________ receive signals from sensory receptors.
   A. axons  
   B. glial cells  
   C. nodes of Ranvier  
   D. Schwann cells  
   E. dendrites

   In a neuron, dendrites receive signals from sensory receptors.

27. Which of the following is a gap in the myelin sheath?
   A. node of Ranvier  
   B. nerve impulse  
   C. Schwann cell  
   D. Pacinian corpuscle  
   E. interneuron

   The node of Ranvier is a gap in the myelin sheath.

28. The outer covering of some axons which is composed of lipid material is called:
   A. plasmalemma  
   B. sarcolemma  
   C. myelin sheath  
   D. endomysium  
   E. perimysium

   The outer covering of some axons which is composed of lipid material is called the myelin sheath.
29. Which of the following is not a neurotransmitter?

A. GABA
B. Dopamine
C. Insulin
D. Acetylcholine
E. Serotonin

Insulin does not serve as a neurotransmitter.

Chapter reference: 13
Figure/section reference: 13.1
Level of difficulty: Remember/Understand
Mader - Chapter 13 #14
Question type: Multiple choice
Topic Area: Nervous System

30. Physiologically, resting potential indicates that the charge inside of the neuron is _____ compared to the outside.

A. positive
B. negative
C. neutral
D. changing
E. none of the above

Physiologically, resting potential indicates that the charge inside of the neuron is negative compared to the outside.

Chapter reference: 13
Figure/section reference: 13.1
Level of difficulty: Apply/Analyze
Mader - Chapter 13 #15
Question type: Missing word sentence
Topic Area: Nervous System
31. When a neuron is excited:

A. positive charges move in
B. the nerve fiber becomes depolarized
C. an impulse begins to flow
D. the nerve cell membrane becomes permeable to sodium

**E. All of the choices are correct.**

When a neuron is excited: positive charges move in, the nerve fiber becomes depolarized, an impulse begins to flow, and the nerve cell membrane becomes permeable to sodium.

32. In the nervous system, action potential is measured in millivolts (mV) and when action potential occurs, the membrane potential ranges from _______.

A. -90mV to +20mV
B. +65mV to -40mV
C. -65mV to +40mV
D. -30mV to +60mV
E. none of the above

In the nervous system, action potential is measured in millivolts (mV) and when action potential occurs, the membrane potential ranges from -65mV to +40mV.
33. In nerve physiology, the time soon after an action potential has moved on and the sodium gates are unable to open is called the __________.

A. refraction period
B. latent period
C. treppe
D. action potential period
E. refractory period

In nerve physiology, the time soon after an action potential has moved on and the sodium gates are unable to open is called the refractory period.

34. In order for sodium to be pumped out of a neuron, __________ must occur.

A. simple diffusion
B. osmosis
C. an expenditure of energy
D. potassium rush
E. neurotransmitter release

In order for sodium to be pumped out of a neuron, an expenditure of energy must occur.
35. A neuron repolarizes by ________ after it has been stimulated.

A. producing ATP  
B. the generation of a second impulse  
C. growing a myelin sheath  
D. the outward movement of potassium ions (K+)  
E. generating an impulse in the opposite direction

A neuron repolarizes by the outward movement of potassium ions (K+) after it has been stimulated.

Chapter reference: 13  
Figure/section reference: 13.1  
Level of difficulty: Apply/Analyze  
Mader - Chapter 13 #20  
Question type: Missing word sentence  
Topic Area: Nervous System

36. Neurotransmitters are stored in synaptic vesicles in the:

A. neuron cell body  
B. dendrite terminals  
C. axon terminals  
D. myelin sheath  
E. synaptic gutter

Neurotransmitters are stored in synaptic vesicles in the axon terminals.

Chapter reference: 13  
Figure/section reference: 13.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 13 #22  
Question type: Multiple choice  
Topic Area: Nervous System

37. The ____________ serves to link the left and right hemispheres of the brain.

A. arbor vitae  
B. RAS  
C. limbic system  
D. pons  
E. corpus callosum

The corpus callosum serves to link the left and right hemispheres of the brain.

Chapter reference: 13  
Figure/section reference: 13.2  
Level of difficulty: Remember/Understand  
Mader - Chapter 13 #28  
Question type: Missing word sentence  
Topic Area: Nervous System
38. As the result of degeneration of specific neurons in the basal nuclei, Hugh developed ____________.

A. Alzheimer's disease 
B. Paget's disease 
C. Parkinson disease 
D. Hurler syndrome 
E. Leishmania 

As the result of degeneration of specific neurons in the basal nuclei, Hugh developed Parkinson disease.

39. Scientists discovered by destroying or stimulating portions of the ____________, a laboratory rat would either eat itself to death or starve to death.

A. thalamus 
B. hypothalamus 
C. cerebellum 
D. pineal gland 
E. arbor vitae 

Scientists discovered by destroying or stimulating portions of the hypothalamus, a laboratory rat would either eat itself to death or starve to death.

Chapter reference: 13
Figure/section reference: 13.2
Level of difficulty: Apply/Analyze
Mader - Chapter 13 §34
Question type: Missing word sentence
Topic Area: Nervous System
40. Greg's ____________ allowed him to recall the specific smells of his grandmother's house long after he moved away.

A. limbic system  
B. corpus callosum  
C. amygdala  
D. medulla oblongata  
E. hippocampus

Greg's limbic system allowed him to recall the specific smells of his grandmother's house long after he moved away.

41. The ________ plays a crucial role in learning and memory and the ________ plays a crucial role in the sensation of fear.

A. amygdala, hippocampus  
B. pons, cerebellum  
C. medulla oblongata, pons  
D. hippocampus, amygdala  
D. hippocampus, amygdala  
E. cerebellum, pons

The hippocampus plays a crucial role in learning and memory and the amygdala plays a crucial role in the sensation of fear.
42. Identify the danger/dangers of alcohol abuse.
   
   A. pH of blood declines as it becomes acidic
   B. Krebs cycle does not operate properly
   C. fat accumulates in the liver; also, liver cells die
   D. immune system functioning declines
   E. All of the choices are correct.

   Several of the dangers of alcohol abuse include: the pH of the blood declines as it becomes acidic, the Krebs cycle does not operate properly, fat accumulates in the liver; also, liver cells die, and immune system functioning declines.

43. _________ is a neurotransmitter that is considered "a feel good neurotransmitter" because it can affect moods.

   A. GABA
   B. Acetylcholine
   C. Epinephrine
   D. Serotonin
   E. Dopamine

   Dopamine is a neurotransmitter that is considered "a feel good neurotransmitter" because it can affect moods.
44. ___________ are sensory receptors that respond to stimuli from outside the body and ___________ are sensory receptors that respond to stimuli from inside the body.

A. Proprioceptors, pressoreceptors
B. Pressoreceptors, proprioceptors
C. Chemoreceptors, nociceptors
D. Interoceptors, exteroceptors
E. Exteroceptors, interoceptors

Exteroceptors are sensory receptors that respond to stimuli from outside the body and interoceptors are sensory receptors that respond to stimuli from inside the body.

45. That nagging pain in the jaw served as a precursor that John's abscess was getting worse. The ___________ were letting him know about the potential problem.

A. proprioceptors
B. nociceptors
C. mechanoreceptors
D. photoreceptors
E. pressoreceptors

That nagging pain in the jaw served as a precursor that John's abscess was getting worse. The nociceptors were letting John know about the potential problem.
46. The chemoreceptors monitoring the pH of Tom's blood detected that the pH was lowering. In turn Tom began to:

A. breathe slower  
B. produce more urine  
C. conserve water  
D. breathe faster  
E. sweat

The chemoreceptors monitoring the pH of Tom's blood detected that the pH was lowering. In turn Tom began to breathe faster.

Chapter reference: 14  
Figure/section reference: 14.1  
Level of difficulty: Apply/Analyze  
Mader - Chapter 14 #4  
Question type: Missing word sentence  
Topic Area: Special Senses

47. The process of sensation occurs:

A. when the nerve impulse is first triggered  
B. when the nerve impulse arrives at the cerebral cortex  
C. when the organism reacts to the nerve impulse  
D. when a nerve signal crosses the synapse  
E. none of the above

The process of sensation occurs when the nerve impulse arrives at the cerebral cortex.

Chapter reference: 14  
Figure/section reference: 14.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 14 #6  
Question type: Multiple choice  
Topic Area: Special Senses
48. The process of stimuli interpretation seems to occur:

A. within highly specialized receptors  
B. in all receptors  
C. at synapses outside the central nervous system  
D. in the peripheral nervous system only  
E. in the central nervous system only  

The process of stimuli interpretation seems to occur in the central nervous system only.

49. Meissner corpuscles and Krause end bulbs can be found in the:

A. fingertips  
B. nipples  
C. lips  
D. tongue  
E. all of the above  

Meissner corpuscles and Krause end bulbs can be found in the fingertips, nipples, lips, palms, tongue, penis, and clitoris.
50. Many amputees describe having feelings or pain from the limb that was removed. This sensation is known as __________.

A. chronic pain
B. acute pain
C. phasic pain
D. tonic pain
E. phantom pain

Many amputees describe having feelings or pain from the limb that was removed. This sensation is known as phantom pain.

---

51. Recently a fifth taste receptor called umami has been described. It may play a role in the evolution of carnivory in humans because it is sensitive to the taste of:

A. plant material
B. salts
C. alkalines
D. meat
E. all of the above

Recently a fifth taste receptor called umami has been described. It may play a role in the evolution of carnivory in humans because it is sensitive to the taste of meat.
52. The reason why you lick a sucker with the tip of your tongue is that:

A. the majority of sweet taste buds are found on the tip of the tongue
B. it is too big to place farther in your mouth
C. sour taste buds are mostly found on the tip of the tongue
D. umami taste buds are located at the tip of the tongue
E. none of the above

The reason why you lick a sucker with the tip of your tongue is that the majority of sweet taste buds are found on the tip of the tongue.

53. ___________ taste buds are found mostly on the sides of the tongue.

A. Sweet
B. Bitter
C. Umami
D. Salty
E. Sour

Sour taste buds are found mostly on the sides of the tongue.
54. A Chinese buffet represents a unique taste experience that tantalizes all of the taste senses. In order to interpret the taste, the brain must produce a __________ of the multitude of tastes.

A. taste map  
**B.** weighted average  
C. dominance map  
D. discrimination map  
E. none of the above

A Chinese buffet represents a unique taste experience that tantalizes all of the taste senses. In order to interpret the taste, the brain must produce a weighted average of the multitude of tastes.

---

55. The sense of smell is known as:

A. gustation  
B. equilibrium  
**C.** olfaction  
D. compaction  
E. integration

The sense of smell is known as olfaction.
56. Choose the CORRECT statement concerning anatomy of the eye.

A. The sclera is the outer white fibrous layer.
B. The fovea centralis is a region of dense cones.
C. The cornea normally is transparent.
D. The choroid absorbs light.
E. All of the choices are correct.

The following statements are true about the anatomy of the eye: the sclera is the outer white fibrous layer; the fovea centralis is a region of dense cones; the cornea normally is transparent; and the choroid absorbs light.

Chapter reference: 14
Figure/section reference: 14.4
Level of difficulty: Apply/Analyze
Mader - Chapter 14 #30
Question type: Multiple choice
Topic Area: Special Senses

57. The region of the eye known as the choroid _______.

A. refracts light rays
B. absorbs stray light rays
C. transmits impulses to the brain
D. makes color vision possible
E. none of the above

The region of the eye known as the choroid absorbs stray light rays.

Chapter reference: 14
Figure/section reference: 14.4
Level of difficulty: Remember/Understand
Mader - Chapter 14 #31
Question type: Missing word sentence
Topic Area: Special Senses
58. The _______ is known as the white of the eye and serves to protect and support the eyeballs.

A. choroid  
B. conjunctiva  
C. ciliary body  
D. sclera  
E. retina

The sclera is known as the white of the eye and serves to protect and support the eyeballs.

59. The aperture of a camera is an opening that regulates the amount of light entering the camera, this feature is synonymous to the _________ of the eye.

A. choroid  
B. pupil  
C. iris  
D. sclera  
E. retina

The aperture of a camera is an opening that regulates the amount of light entering the camera, this feature is synonymous to the pupil of the eye.
60. The posterior compartment of the eye behind the lens if filled with a viscous material called the _____ humor.

A. choroid  
B. aqueous  
C. ciliary  
D. vitreous  
E. optic

The posterior compartment of the eye behind the lens if filled with a viscous material called the vitreous humor.

61. The area in the retina that is responsible for acute vision and that contains only cones is called the ____________.

A. optic nerve  
B. fovea centralis  
C. pupil  
D. choroid  
E. sclera

The area in the retina that is responsible for acute vision and that contains only cones is called the fovea centralis.
62. The deep purple visual pigment of rods is:

A. rhodopsin  
B. retinal  
C. vitamin A  
D. carotene  
E. pepsin

Rhodopsin is the deep purple visual pigment found in rods.

63. ______ are visual receptors that function in low light and ______ are visual receptors responsible for color vision.

A. Cones, rods  
B. Rods, cones  
C. Ciliaries, rods  
D. Ciliaries, cones  
E. none of the above

Rods are visual receptors that function in low light and cones are visual receptors responsible for color vision.
64. The _______ secretes hormones that are released into the bloodstream to effect target cells.

A. nervous system  
B. circulatory system  
C. immune system  
D. lymphatic system  
E. endocrine system

The endocrine system secretes hormones that are released into the bloodstream to effect target cells.

Chapter reference: 15  
Figure/section reference: 15.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 15 #1  
Question type: Missing word sentence  
Topic Area: Endocrine system

65. ________ is the mechanism that helps maintain homeostasis in the body.

A. Chemosynthesis  
B. Positive feedback  
C. Negative feedback  
D. Internalization  
E. None of the above

Positive feedback is the mechanism that helps maintain homeostasis in the body.

Chapter reference: 15  
Figure/section reference: 15.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 15 #3  
Question type: Missing word sentence  
Topic Area: Endocrine system
66. _____ glands that secrete products directly into the bloodstream without ducts and _____ glands possess ducts and secrete their products into their ducts.

A. Acinar, merocrine
B. Endocrine, exocrine
C. Sebaceous, ceruminous
D. Exocrine, endocrine
E. Accrine, acinar

Endocrine glands that secrete products directly into the bloodstream without ducts and exocrine glands possess ducts and secrete their products into their ducts.

Chapter reference: 15
Figure/section reference: 15.1
Level of difficulty: Remember/Understand
Mader - Chapter 15 #2
Question type: Missing word sentence
Topic Area: Endocrine system

67. Which of the following hormones is/are not secreted by the anterior pituitary?

A. growth hormone
B. prolactin
C. oxytocin
D. adrenocorticotropic hormone
E. thyroid stimulating hormone

Oxytocin is not produced by the anterior pituitary gland.

Chapter reference: 15
Figure/section reference: Figure 15.2
Level of difficulty: Remember/Understand
Mader - Chapter 15 #4
Question type: Multiple choice
Topic Area: Endocrine system
The posterior pituitary gland produces:

A. oxytocin and rennin  
B. ADH and erythropoietin  
C. thymosin and epinephrine  
D. ADH and oxytocin  
E. prolactin and androgen

The posterior pituitary gland produces ADH and oxytocin.

Epinephrine and norepinephrine are produced by the:

A. parathyroid  
B. adrenal cortex  
C. adrenal medulla  
D. anterior pituitary  
E. pineal gland

Epinephrine and norepinephrine are produced by the adrenal medulla.

Insulin and glucagon are secreted by the ____________.

A. pineal gland  
B. gonads  
C. pancreas  
D. thymus  
E. hypothalamus

Insulin and glucagon are secreted by the pancreas.
71. Pat could not understand why the male deer chased him around the petting zoo. However, upon further contemplation, he realized that his new musky cologne contained __________ that excited the deer.

A. peptides  
B. erythropoietin  
C. thymosin  
D. pheromones  
E. prolactin

Pat could not understand why the male deer chased him around the petting zoo. However, upon further contemplation, he realized that his new musky cologne contained pheromones that excited the deer.

72. Steroid hormones are derived from __________.

A. glycogen  
B. glycolipids  
C. cholesterol  
D. amino acids  
E. mucopolysaccharides

Steroid hormones are derived from cholesterol.
73. The hypothalamus regulates the internal environment through the ________ nervous system.

A. somatic  
B. parasympathetic  
C. visceral  
D. autonomic  
E. afferent

The hypothalamus regulates the internal environment through the autonomic nervous system.

Chapter reference: 15  
Figure/section reference: 15.2  
Level of difficulty: Remember/Understand  
Mader - Chapter 15 #12  
Question type: Missing word sentence  
Topic Area: Endocrine system

74. Mike was exhibiting excessive urine production or polyuria. This is a symptom of diabetes insipidus and is related to the inability of the posterior pituitary to produce the proper amount of ________.

A. thymosin  
B. oxytosin  
C. antidiuretic hormone  
D. parathyroid hormone  
E. epinephrine

Mike was exhibiting excessive urine production or polyuria. This is a symptom of diabetes insipidus and is related to the inability of the posterior pituitary to produce the proper amount of antidiuretic hormone (ADH).

Chapter reference: 15  
Figure/section reference: 15.2  
Level of difficulty: Apply/Analyze  
Mader - Chapter 15 #14  
Question type: Missing word sentence  
Topic Area: Endocrine system
75. The hormone TSH produced by the anterior pituitary serves to:

A. stimulate the adrenal cortex  
B. stimulate the gonads  
C. stimulate the thyroid gland  
D. stimulate the parathyroid gland  
E. inhibit the production of thymosin

The hormone TSH produced by the anterior pituitary serves to stimulate the thyroid gland.

76. Nathan was below the growth curve and was not able to produce the necessary amount of growth hormone. He was diagnosed with _______.

A. acromegaly  
B. achondroplasia  
C. progeria  
D. pituitary dwarfism  
E. Hurler syndrome

Nathan was below the growth curve and was not able to produce the necessary amount of growth hormone. He was diagnosed with pituitary dwarfism.
77. Andre the Giant was abnormally tall, possessed a large hands and feet, and had prominent brow ridges, nose, and chin. This disorder began to manifest in childhood. It is now known that he suffered from a disorder known as ____________.

A. acromegaly  
B. achondroplasia  
C. progeria  
D. pituitary dwarfism  
E. gigantism

Andre the Giant was abnormally tall, possessed a large hands and feet, and had prominent brow ridges, nose, and chin. It is now known that he suffered from a disorder known as acromegaly.

Chapter reference: 15  
Figure/section reference: 15.2  
Level of difficulty: Apply/Analyze  
Mader - Chapter 15 #17  
Question type: Missing word sentence  
Topic Area: Endocrine system

78. The hypothalamic-releasing hormones directly control the:

A. adrenal cortex  
B. thyroid  
C. anterior pituitary  
D. posterior pituitary  
E. pancreas

The hypothalamic-releasing hormones directly control the anterior pituitary.

Chapter reference: 15  
Figure/section reference: 15.2  
Level of difficulty: Apply/Analyze  
Mader - Chapter 15 #19  
Question type: Missing word sentence  
Topic Area: Endocrine system
79. The _______ gland is the largest endocrine gland located in the neck region and attached to the trachea below the larynx.

A. pituitary  
B. parathyroid  
C. adrenal  
D. thyroid  
E. none of the above

The thyroid gland is the largest endocrine gland located in the neck region and attached to the trachea below the larynx.

80. The thyroid gland releases the hormones ____________.

A. thyroxine  
B. triiodothyronine  
C. calcitonin  
D. All of the choices are correct.

The thyroid gland releases the hormones thyroxine (T₃), triiodothyronine (T₄), and calcitonin.
81. In some inland regions where seafood is not plentiful, people may suffer from an iodine deficiency known as ____.

A. myxedema  
B. Grave's disease  
C. progeria  
D. goiter  
E. Cushing's syndrome

In some inland regions where seafood is not plentiful, people may suffer from an iodine deficiency known as goiter.

82. The release of parathyroid hormone triggers:

A. an increase in stored calcium  
B. an increase in blood calcium  
C. an increase in thyroid hormones  
D. a decrease in phosphorus in bone  
E. an increase in prolactin

The release of parathyroid hormone triggers an increase in blood calcium.
83. Osteoporosis and perhaps calcium kidney stones can result from ____.
   A. hypothyroidism  
   B. hyperthyroidism  
   C. adrenoleukodystrophy  
   D. hyperparathyroidism  
   E. hypoparathyroidism

   Osteoporosis and perhaps calcium kidney stones can result from hyperparathyroidism.

84. The adrenal glands sit atop the ____________.
   A. liver  
   B. gallbladder  
   C. hypothalamus  
   D. kidneys  
   E. pancreas

   The adrenal glands sit atop the kidneys.
85. _________ serve/serves to regulate salt/water balance and _________ serve/serves to regulate glucose levels.

A. Thymosin, epinephrine  
B. Epinephrine, norepinephrine  
C. Glucocorticoids, mineralocorticoids  
D. Mineralocorticoids, glucocorticoids  
E. ACTH, ADH

Mineralocorticoids serve to regulate salt/water balance and glucocorticoids serve to regulate glucose levels.

86. President John Kennedy exhibited a bronzing of the skin, weight loss, and dehydration. He was diagnosed with ________.

A. Addison disease  
B. Cushing syndrome  
C. Grave's disease  
D. Hurler syndrome  
E. Down syndrome

President John Kennedy exhibited a bronzing of the skin, weight loss, and dehydration. He was diagnosed with Addison disease.
87. In an emergency situation where the rate of heartbeat decreases, a doctor would most likely administer an injection of:

A. insulin  
B. ACTH  
C. epinephrine  
D. thyrotropin  
E. parathyroid hormone

In an emergency situation where the rate of heartbeat decreases, a doctor would most likely administer an injection of epinephrine.

88. The primary target organ of aldosterone is ______ where it regulates sodium and potassium balance.

A. the liver  
B. the pancreas  
C. the kidneys  
D. the bladder  
E. all of the above

The primary target organ of aldosterone is the kidneys where it regulates sodium and potassium balance.
89. Which statement is not true about the renin-angiotensin/aldosterone system?

A. renin is secreted when the blood volume is low
B. renin converts angiotensin I into angiotensin II
C. angiotensin II constricts arteries to increase blood pressure
D. aldosterone causes the kidneys to reabsorb sodium
E. aldosterone causes increased blood volume, therefore increased pressure

Renin converts angiotensin I into angiotensin II is not a correct statement.

90. In __________ the cells of the body especially those of the liver and muscles fail to take up glucose.

A. diabetes insipidus
B. diabetes mellitus
C. Addison disease
D. Grave’s disease
E. none of the above

In diabetes mellitus the cells of the body especially those of the liver and muscles fail to take up glucose.
91. In ancient times physicians tasted the urine to diagnose ________.
   A. progeria
   B. Patu syndrome
   C. diabetes
   D. ichthyosis
   E. Grave's disease

   In ancient times physicians tasted the urine to diagnose diabetes.

92. Living a sedentary life style and too many sweets were responsible for Mr. Wilson developing ________.
   A. type I diabetes
   B. type II diabetes
   C. Graves' disease
   D. Cushing syndrome
   E. hypertrichosis

   Living a sedentary life style and too many sweets were responsible for Mr. Wilson developing type II diabetes.
93. Perhaps seasonal depression syndrome and even onset of early puberty can be related to the _____.

A. thymus  
B. thyroid gland  
C. adrenal glands  
D. pineal gland  
E. leptin

Perhaps seasonal depression syndrome and even onset of early puberty can be related to the pineal gland.

94. The thymus aids the differentiation of ________.

A. erythrocytes  
B. T lymphocytes  
C. platelets  
D. B lymphocytes  
E. megakaryocytes

The thymus aids the differentiation of T lymphocytes.
95. In humans, chromosome pairs 1-22 are called _______ and chromosome pair 23 is called _______.

A. gametes, autosomes  
B. autosomes, sex chromosomes  
C. somatosomes, gametosomes  
D. sex chromosomes, autosomes  
E. none of the above

In humans, chromosome pairs 1-22 are called autosomes and chromosome pair 23 is called sex chromosomes.

Chapter reference: 18  
Figure/section reference: 18.1  
Level of difficulty: Remember/Understand  
Mader - Chapter 18 #1

Question type: Missing word sentence  
Topic Area: Patterns of Chromosome Inheritance

96. Since Deborah was 36 years old and pregnant, Dr. Faulkenberry suggested that she have an amniocentesis and subsequent __________ to see that the fetus has the full complement of chromosomes.

A. angiogram  
B. cross match  
C. angioplasty  
D. karyotype  
E. chorionic villus sampling

Since Deborah was 36 years old and pregnant, Dr. Faulkenberry suggested that she have an amniocentesis and subsequent karyotype to see that the fetus has the full complement of chromosomes.

Chapter reference: 18  
Figure/section reference: 18.1  
Level of difficulty: Apply/Analyze  
Mader - Chapter 18 #2

Question type: Missing word sentence  
Topic Area: Patterns of Chromosome Inheritance
97. Sister chromatids are held together in a specific region called the ____________.

A. telomere
B. chromomere
C. mesomere
D. centromere
E. kinetochore

Sister chromatids are held together in a specific region called the centromere.

Chapter reference: 18
Figure/section reference: 18.1
Level of difficulty: Remember/Understand
Mader - Chapter 18 #3
Question type: Missing word sentence
Topic Area: Patterns of Chromosome Inheritance

98. The process of programmed cell death is called:

A. karyokinesis
B. cytokinesis
C. apoptosis
D. synapsis
E. crossing over

The process of programmed cell death is called apoptosis.

Chapter reference: 18
Figure/section reference: 18.1
Level of difficulty: Remember/Understand
Mader - Chapter 18 #4
Question type: Multiple choice
Topic Area: Patterns of Chromosome Inheritance

99. A ______ is a group of symptoms that always occur together.

A. synapse
B. chorea
C. tetrad
D. syndrome
E. crossing over

A syndrome is a group of symptoms that always occur together.

Chapter reference: 18
Figure/section reference: 18.1
Level of difficulty: Remember/Understand
Mader - Chapter 18 #5
Question type: Missing word sentence
Topic Area: Patterns of Chromosome Inheritance
100. Danielle was debating whether to have amniocentesis or chorionic villi sampling. Dr. Ferguson explained that the advantages of CVS include that:

A. it can be performed sooner in the pregnancy than amniocentesis and the results from karyotyping can be read at an earlier date
B. there is a greater risk of spontaneous abortion than with amniocentesis
C. CVS uses amniotic fluid
D. amniocentesis gathers fewer cells
E. None of the above

Danielle was debating whether to have amniocentesis or chorionic villi sampling. Dr. Ferguson explained that the advantages of CVS include that it can be performed sooner in the pregnancy than amniocentesis and the results from karyotyping can be read at an earlier date.

Chapter reference: 18
Figure/section reference: 18.1
Level of difficulty: Apply/Analyze
Mader - Chapter 18 #6
Question type: Multiple choice
Topic Area: Patterns of Chromosome Inheritance

101. During the majority of a cell's life, it is in ______ that was once called the resting stage. However, today it is the interval of time between cell divisions.

A. metaphase
B. cytokinesis
C. interphase
D. gap 2
E. anaphase

During the majority of a cell's life, it is in interphase that was once called the resting stage. However, today it is the interval of time between cell divisions.

Chapter reference: 18
Figure/section reference: 18.1
Level of difficulty: Remember/Understand
Mader - Chapter 18 #7
Question type: Missing word sentence
Topic Area: Patterns of Chromosome Inheritance
102. In a non-dividing cell, the nucleus contains indistinct and diffuse chromatin, but in a dividing cell, these become short and thick and are called:

A. genes  
B. DNA  
C. chromosomes  
D. introns  
E. exons

In a non-dividing cell, the nucleus contains indistinct and diffuse chromatin, but in a dividing cell, these become short and thick and are called chromosomes.

103. The type of cellular nuclear division that produces two daughter cells with the same number and kind of chromosomes is called:

A. meiosis  
B. synthesis  
C. apoptosis  
D. mitosis  
E. synapsis

The type of cellular nuclear division that produces two daughter cells with the same number and kind of chromosomes is called mitosis.
104. The process of mitosis is comprised of four stages. Which statement correctly places the stages in order?

A. anaphase, prophase, telophase, metaphase
B. prophase, telophase, metaphase, anaphase
C. prophase, metaphase, anaphase, telophase
D. telophase, metaphase, anaphase, prophase
E. prophase, telophase, anaphase, metaphase

The correct sequence for mitotic division includes: prophase, metaphase, anaphase, and telophase.

105. Which statement is false concerning prophase?

A. prophase occurs after interphase
B. during prophase, chromosomes are randomly placed in the nucleus
C. during prophase, spindle fibers attach to the centromeres
D. during prophase the DNA is replicated
E. during prophase the chromosomes shorten and thicken

During prophase the DNA is replicated is an incorrect statement.

106. Which of the following events occurs during anaphase?

A. cytokinesis begins
B. chromosomes line up at the equator
C. chromosomes condense and become visible
D. DNA replication
E. separation of the sister chromatids occurs

During anaphase the separation of the sister chromatids occurs.
107. Two daughter nuclei are formed from each parent cell during:

A. interphase  
B. prophase  
C. metaphase  
D. anaphase  
E. telophase

Two daughter nuclei are formed from each parent cell during telophase.

Chapter reference: 18  
Figure/section reference: 18.2  
Level of difficulty: Remember/Understand  
Mader - Chapter 18 #17  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance

108. The indentation, or pinching in of the cell membrane, around the circumference of the cell during the end of mitosis is called the:

A. aster  
B. centromere  
C. centriole  
D. cleavage furrow  
E. synapsis

The indentation, or pinching in of the cell membrane, around the circumference of the cell during the end of mitosis is called the cleavage furrow.

Chapter reference: 18  
Figure/section reference: 18.2  
Level of difficulty: Remember/Understand  
Mader - Chapter 18 #18  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance
109. Jennifer asked, "Why does my dog always try to lick my scratches and cuts"? Since dogs have a high number of epidermal growth factors (EGF's) in their saliva they serve to:

A. inhibit meiosis  
B. inhibit cell division  
C. promote cell division  
D. promote meiosis  
E. none of the above

Jennifer asked, "Why does my dog always try to lick my scratches and cuts"? Since dogs have a high number of epidermal growth factors (EGF's) in their saliva they serve to promote cell division.

Chapter reference: 18  
Figure/section reference: 18.2  
Level of difficulty: Apply/Analyze  
Mader - Chapter 18 #22  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance

110. The cellular process that requires two nuclear divisions, resulting in four daughter cells with half of the parent chromosomal number is:

A. mitosis  
B. meiosis  
C. apoptosis  
D. synapsis  
E. cytokinesis

The cellular process that requires two nuclear divisions, resulting in four daughter cells with half of the parent chromosomal number is known as meiosis.

Chapter reference: 18  
Figure/section reference: 18.3  
Level of difficulty: Remember/Understand  
Mader - Chapter 18 #23  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance
111. ________ are pairs of alike chromosomes that look alike and carry the same genes.

A. Tetrads  
**B. Homologues**  
C. Analogues  
D. Replicants  
E. Bifurcates

Homologues are pairs of alike chromosomes that look alike and carry the same genes.

Chapter reference: 18  
Figure/section reference: 18.3  
Level of difficulty: Remember/Understand  
Mader - Chapter 18 #24  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance

112. Meiosis is very important for the production of gametes in order to:

A. provide for genetic variation  
B. ensure the proper number of chromosomes exist after fertilization  
C. produce gametes with the haploid number of chromosomes  
D. stabilize the number of chromosomes passed through the generations  
**E. All of the above are correct.**

Meiosis is very important for the production of gametes in order to: provide for genetic variation, ensure the proper number of chromosomes exist after fertilization, produce gametes with the haploid number of chromosomes, and stabilize the number of chromosomes passed through the generations.

Chapter reference: 18  
Figure/section reference: 18.3  
Level of difficulty: Apply/Analyze  
Mader - Chapter 18 #26  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance
113. Many biologists emphasize that _____ between non-sister chromatids during synapsis is an important event because it will result in new combinations of genes.

A. centesis  
B. synapsis  
C. replication  
D. interkinesis  
E. crossing-over

Many biologists emphasize that crossing over between non-sister chromatids during synapsis is an important event because it will result in new combinations of genes.

114. Tetrads line up at the equator in which phase of meiosis:

A. metaphase I
B. anaphase I
C. telophase I
D. prophase I
E. none of the above

Tetrads line up at the equator in metaphase I of meiosis.
115. The second meiotic division is essentially mitosis, except that the resultant cells in which this division occurs are:

A. haploid
B. diploid
C. polyploid
D. somatic
E. aneuploid

The second meiotic division is essentially mitosis, except that the resultant cells in which this division occurs are haploid.

Chapter reference: 18
Figure/section reference: 18.3
Level of difficulty: Remember/Understand
Mader - Chapter 18 #31
Question type: Multiple choice
Topic Area: Patterns of Chromosome Inheritance

116. ____________ serve to eliminate excess genetic material in eggs.

A. Tetrads
B. Ootids
C. Polar bodies
D. Telomeres
E. Oogonia

Polar bodies serve to eliminate excess genetic material in eggs.

Chapter reference: 18
Figure/section reference: 18.4
Level of difficulty: Remember/Understand
Mader - Chapter 18 #33
Question type: Missing word sentence
Topic Area: Patterns of Chromosome Inheritance
117. Tina's identical twins were the result of:

A. two eggs and two sperm
B. one egg and two sperm
C. one egg and one sperm
D. two eggs and one sperm
E. none of the above

Tina's identical twins were the result of one sperm uniting with one egg.

Chapter reference: 18  
Figure/section reference: 18.4  
Level of difficulty: Apply/Analyze  
Mader - Chapter 18 #35  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance

118. The diploid (2n) cells of the ovaries that begin the meiotic process are called:

A. primary oocytes
B. secondary oocytes
C. ootids
D. polar bodies
E. oogonia

The diploid (2n) cells of the ovaries that begin the meiotic process are called primary oocytes.

Chapter reference: 18  
Figure/section reference: 18.4  
Level of difficulty: Apply/Analyze  
Mader - Chapter 18 #37  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance
119. The secondary oocyte begins meiosis II but stops at metaphase II and does not complete metaphase II unless:

A. hormones initiate anaphase II  
B. the fertilization process begins  
C. DNA replication is complete  
D. crossing over is complete  
E. None of the above

The secondary oocyte begins meiosis II but stops at metaphase II and does not complete metaphase II unless the fertilization process begins.

Chapter reference: 18  
Figure/section reference: 18.4  
Level of difficulty: Apply/Analyze  
Mader - Chapter 18 #39  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance

120. James and Jennifer were fraternal twins, this meant that they:

A. were the product of one egg and one sperm.  
B. were the product of one egg and two sperm  
C. were the product of two eggs and two sperm.  
D. were the product of a nondisjunction event.  
E. were the product of a polyspermic event.

James and Jennifer were fraternal twins, this meant that they were the product of two eggs and two sperm.

Chapter reference: 18  
Figure/section reference: 18.4  
Level of difficulty: Apply/Analyze  
Mader - Chapter 18 #38  
Question type: Multiple choice  
Topic Area: Patterns of Chromosome Inheritance
121. Nondisjunction occurs when ____________.

A. homologous pairs do not separate in meiosis I.
B. crossing-over occurs in sister chromatids.
C. sister chromatids do not separate in mitosis or meiosis II.
D. the tetrads form.
E. Both A and C are correct.

Nondisjunction occurs when either homologous pairs do not separate in meiosis I or sister chromatids do not separate in mitosis or meiosis II.

122. The inactive X chromosome is distinguishable by the presence of a ____________.

A. transposon
B. translocation body
C. Barr body
D. Monosomy body
E. Williams body

The inactive X chromosome is distinguishable by the presence of a Barr body.

123. Which of the following is a true statement about Trisomy 21?

A. is a result of non-disjunction of the X chromosome
B. is typified by having a cry sound like that of a cat
C. is more likely to occur in children of older women
D. results from having a XYY karyotype
E. females are short, have a broad chest, and a webbed neck

Trisomy 21 is more likely to occur in children of older women.
124. Jan observed the following traits in her patient with Turner syndrome.

A. nonfunctional ovaries
B. short stature
C. webbed neck
D. wide chest with widely separated nipples
E. all of the above

Jan observed the following traits in her patient with Turner syndrome: nonfunctional ovaries, short stature, webbed neck, and a wide chest with widely separated nipples.

Chapter reference: 18
Figure/section reference: 18.5
Level of difficulty: Apply/Analyze
Mader - Chapter 18 #47
Question type: Multiple choice
Topic Area: Patterns of Chromosome Inheritance

125. There is a misconception that individuals with __________ are likely to be criminally aggressive.

A. William's syndrome
B. Jacob's syndrome
C. Hurler syndrome
D. Cri du Chat
E. Klinefelter syndrome

There is a misconception that individuals with Jacob's syndrome are likely to be criminally aggressive.

Chapter reference: 18
Figure/section reference: 18.5
Level of difficulty: Remember/Understand
Mader - Chapter 18 #49
Question type: Multiple choice
Topic Area: Patterns of Chromosome Inheritance
# Biology Exam 3 Summary

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