ANATOMY / PHYSIOLOGY BASICS COURSE POST-TEST

UNIT 1: LEVELS OF ORGANIZATION

1. The word "anatomy" comes from a Greek root word that means:

A structure **B** to cut apart **C** body **D** life

2. Human physiology is the study of the ——— of body structures and the ways in how they work together to support life functions.

A systemic anatomy **B** complexity **C** chemistry and physics **D** uniqueness

3. ——— is the process by which larger more complex substances are broken down into smaller, simpler molecules.

A Anabolism **B** Metabolism **C** Calcinosis **D** Catabolism

4. Negative feedback systems have three basic components, including a sensor, control center and a/an:

A site monitor **B** effector **C** regulator **D** pressure point

5. The ——— is the serous membrane that surrounds the several organs in the abdominopelvic cavity.

A pericardium **B** peritoneum **C** pleura **D** hypochondriac region

6. A PET scan is a medical imaging technique in which radiopharmaceuticals are traced to reveal ——— and physiological functions in tissues.

A metabolic **B** hematologic **C** hormonal **D** reproductive

7. An electron has about ——— the mass of a proton or neutron.

A 1/500th **B** 1/1000th **C** 1/2000th **D** 1/3000th

8. ——— is an essential component of life because it is able to break the ionic bonds in salts to free the ions.

A Carbon **B** Water **C** Hydrogen **D** Oxygen

9. An enzyme is a catalyst composed of protein or ——— acid.

A sulfuric **B** perchloric **C** ribonucleic **D** hydrochloric

10. Carbohydrates are referred to as:

A galactose **B** saccharides **C** triglycerides **D** fructose

11. Prostaglandins are derived from:

A proteins **B** unsaturated fatty acids **C** cholesterol **D** steroids

12. Synthesis reaction is a type of anabolic reaction where two or more atoms or molecules bond, resulting in formation of a larger molecule.

A True **B** False

13. ——— is the movement of particles from an area of high concentration to an area of lower concentration.

A Passive transport **B** Diffusion **C** Active transport **D** Facilitated diffusion

14. ———, the jelly-like substance within the cell, provides the fluid medium necessary for biochemical reactions.

A Cytoplasm **B** Lumen **C** Cytosol **D** Extracellular fluid

15. Within the nucleus are threads of ——— composed of DNA and associated proteins.

A chromosomes **B** nucleosomes **C** histones **D** chromatin

16. Translation is the process of synthesizing a chain of amino acids called a(n):

A RNA strand **B** codon **C** anticodon **D** polypeptide

17. At the ——— checkpoint, the cell must be ready for DNA synthesis to occur.

A G_0 **B** G_1 **C** G_2 **D** G_3

18. The process of ——— involves the differentiation of multipotent cells into blood and immune cells.

A hematopoiesis **B** splicing **C** phagocytosis **D** autolysis

19. The first embryonic cells generated have the ability to differentiate into any type of cell in the body and, as such, are called:

A unipotent **B** pluripotent **C** totipotent **D** multipotent

20. The endothelium is the epithelial tissue that lines vessels of the lymphatic and cardiovascular system.

A True **B** False

21. ——— secretion accumulates near the apical portion of the cell.

A Endocrine **B** Merocrine **C** Holocrine **D** Apocrine

22. ——— is the most common type of cartilage in the body.

A Fibrocartilage **B** Hyaline **C** Elastic **D** Collagen

23. A long "tail," the axon, extends from the body of a neuron and can be wrapped in an insulating layer known as:

A fluid connective tissue **B** endothelium **C** myelin **D** Schwann cells

24. ———, regions of the chromosomes necessary for cell division, shorten each time cells divide.

A Telomerase **B** Centrosomes **C** Centromeres **D** Telomeres

UNIT 2: **SUPPORT AND MOVEMENT**

25. The epidermis is composed of keratinized, stratified squamous epithelium. It is made up of four or five layers of:

A epithelial cells **B** stem cells **C** blood cells **D** nerve cells

26. The ——— is well vascularized and has a rich sensory and sympathetic nerve supply.

A hypodermis **B** papillary layer **C** elastin fiber **D** reticular layer

27. The ——— ends deep in the dermis at the hair bulb.

A hair matrix **B** hair root **C** hair follicle **D** hair papilla

28. A(n) ——— is a type of oil gland that is found all over the body and helps lubricate and waterproof the skin and hair.

A eccrine gland **B** apocrine gland **C** sebaceous gland **D** merocrine gland

29. A third-degree burn extends into the epidermis and dermis, destroying the tissue and affecting the nerve endings and:

A sensory function **B** underlying muscle **C** bone **D** stratum corneum

30. ——— is a hard, dense connective tissue that forms most of the adult skeleton, the support structure of the body.

A Cartilage **B** Osseous tissue **C** Epithelial tissue **D** Mucous membrane

31. A projection is an area of a bone that projects above the surface of the bone.

A True **B** False

32. Bone contains a relatively small number of cells entrenched in a matrix of ——— that provide a surface for salt crystals to adhere.

A elastin fibers **B** reticular fibers **C** elastic fibers **D** collagen fibers

33. By the sixth or seventh week of embryonic life, the actual process of bone development, ——— begins.

A gastrulation **B** neurulation **C** ossification **D** placentation

34. While bones are increasing in length, they are also increasing in diameter, a process called:

A longitudinal growth **B** appositional growth **C** modeling **D** remodeling

35. This type of fracture, called ———, occurs at an angle that is not 90 degrees.

A oblique **B** transverse **C** greenstick **D** comminuted

36. A ——— bone is a small, round bone embedded in a tendon, that protects the tendon from compressive forces.

A compact **B** long **C** short **D** sesamoid

37. There are ——— bones in the appendicular skeleton of an adult.

A 118 **B** 126 **C** 142 **D** 206

38. The ——— connects to the middle and inner ear cavities of the temporal bone.

A styloid process **B** carotid canal **C** internal acoustic meatus **D** external acoustic meatus

39. The coronal suture runs ——— across the skull.

A from side to side **B** downward **C** upward **D** high

40. The ——— sinus is located just above the eyebrows, within the frontal bone.

A maxillary **B** sphenoid **C** frontal **D** paranasal

41. Each paired ——— process projects laterally and arises from the junction point between the pedicle and lamina.

A spinous **B** transverse **C** superior articular **D** inferior articular

42. A costal groove is a shallow groove along the inferior margin of a rib that provides passage for blood vessels and a nerve.

A True **B** False

43. During the third week of embryonic development, a rod-like structure called the ——— develops dorsally along the length of the embryo.

A fontanelle **B** sclerotome **C** somite **D** notochord

44. The ——— lies on the posterior aspect of the shoulder.

A clavicle **B** scapula **C** pectoral girdle **D** axial skeleton

45. The ——— has two phalanges, a proximal phalanx, and a distal phalanx bone.

A ulna **B** interphalangeal joint **C** pollex **D** radius

46. The ——— of the radius is slightly curved and has a small ridge along its medial side.

A neck **B** shaft **C** head **D** ulnar notch

47. The ——— is the kneecap and articulates with the distal femur.

A patella **B** tibia **C** fibula **D** tarsal bone

48. The base of the fifth metatarsal has a large, lateral expansion that provides for muscle attachments.

A True **B** False

49. The ——— is a posteroinferior portion of the hip bone.

A interphalangeal joint **B** humerus **C** ischium **D** lunate

50. An immobile or nearly immobile joint is called a:

A synovial joint **B** synarthrosis **C** cartilaginous joint **D** fibrous joint

51. A cartilaginous joint where the bone are joined by fibrocartilage is called a:

A symphysis **B** gomphosis **C** articular cartilage **D** periodontal ligament

52. Abduction and ——— motions occur within the coronal plane and involve medial-lateral motions of the limbs, fingers, toes, or thumb.

A circumduction **B** pronation **C** adduction **D** supination

53. Located between the articulating surfaces of the femur and tibia are two articular discs, the medial meniscus and:

A medial epicondyle **B** medial tibia **C** fibula **D** lateral meniscus

54. A type of fibrous joint in which the root of a tooth is anchored into its bony jaw socket by strong periodontal ligaments:

A saddle joint **B** gomphosis **C** plane joint **D** acetabulum

55. ——— allows muscle tissue to pull on its attachment points and shorten with force.

A Contractility **B** Elasticity **C** Extensibility **D** Excitability

56. The motor neurons that tell the skeletal muscle fibers to contract originate in the:

A cerebellum **B** brainstem **C** spinal cord **D** spinal fluid

57. As long as ATP is available, it readily attaches to ———, the cross-bridge cycle can recur, and muscle contraction can continue.

A tropomyosin **B** myosin **C** troponin **D** actin

58. The absence of the low-level contractions that lead to muscle tone is referred to as hypotonia.

A True **B** False

59. Paraxial mesodermal cells adjacent to the neural tube form blocks of cells called:

A myoblast **B** satellite cells **C** somites **D** pericyte

60. A muscle with the opposite action of the prime mover is called a/an:

A synergist **B** antagonist **C** fixator **D** agonist

61. The extensor digitorum of the forearm is an example of a ——— muscle.

A pennate **B** unipennate **C** bipennate **D** multipennate

62. The ——— is a circular muscle that moves the lips.

A orbicularis oris **B** buccinator **C** orbicularis oculi **D** corrugator supercilii

63. In anatomical terminology, chewing is called:

A comminution **B** rumination **C** deglutition **D** mastication

64. The ——— group forms the majority of the muscle mass of the back and is the primary extensor of the vertebral column.

A iliocostalis **B** erector spinae **C** longissimus **D** spinalis capitis

65. The anterior muscles include the subclavius, pectoralis minor, and:

A serratus minor **B** trapezius **C** rhomboid major **D** rhomboid minor

66. The flexor retinaculum extends over the ——— of the hand.

A dorsal surface **B** palmar surface **C** distal phalanges **D** distal phalanx

67. The four deep muscles in the posterior compartment of the leg are popliteus, flexor digitorum longus, flexor hallucis longus, and:

A fibularis longus **B** extensor digitorum brevis **C** tibialis posterior **D** calcaneus

68. The ——— is the circle of tendons around the shoulder joint.

A rotator cuff **B** sartorius **C** sternohyoid **D** palmaris longus

UNIT 3: **REGULATION, INTEGRATION, AND CONTROL**

69. A localized collection of neuron cell bodies in the Central Nervous System (CNS) is referred to as a(n):

A ganglion **B** nucleus **C** axon **D** dendrite

70. Neurons are usually described as having ——— axon(s).

A one **B** two **C** three **D** four

71. Glial cells, or neuroglia or simply glia, are a type of cell found in nervous tissue.

A True **B** False

72. A ——— opens because a signaling molecule, a ligand, binds to the extracellular region of the channel.

A mechanically gated channel **B** ligand-gated channel **C** voltage-gated channel **D** leakage channel

73. The action potential is initiated at the beginning of the axon, at what is called the ——— segment.

A orsus **B** prime **C** proto **D** initial

74. There are ——— types of connections between electrically active cells, chemical synapses and electrical synapses.

A two **B** three **C** four **D** five

75. The ——— is the outermost layer of gray matter in the brain, where conscious perception takes place.

A cerebral cortex **B** cerebellum **C** cranium **D** thalamus

76. The ——— develops into the integumentary system and the nervous system.

A exoderm **B** mesoderm **C** endoderm **D** ectoderm

77. The ——— is a vesicle which can be called the midbrain.

A rhombencephalon **B** mesencephalon **C** prosencephalon **D** hindbrain

78. Broca's area is responsible for the production of language, or controlling movements responsible for speech.

A True **B** False

79. Activity in the ——— is related to orienting the eyes to a sound or touch stimulus.

A tectum **B** tegmentum **C** inferior colliculus **D** superior colliculus

80. The internal carotid artery enters the cranium through the ——— in the temporal bone.

A circle of Willis **B** carotid canal **C** foramen magnum **D** occipital sinus

81. Cerebrospinal fluid is produced within the ventricles by a type of specialized membrane called a:

A meningeal dura mater **B** telencephalon **C** choroid plexus **D** cerebral aqueduct

82. The ——— constitute a row of ganglia that receive central input from the lateral horn of the thoracic and upper lumbar spinal cord.

A sympathetic chain ganglia **B** paravertebral ganglia **C** prevertebral ganglia **D** terminal ganglia

83. Axons from different spinal nerves will come together into a:

A nerve plexus **B** ventral nerve root **C** dorsal nerve root **D** systemic nerve

84. The amygdala is nucleus deep in the temporal lobe of the cerebrum and is related to ——— and emotional behavior.

A motor functions **B** visual sensation **C** memory **D** smell

85. An exteroceptor is a receptor that is located near a stimulus in the external environment, such as somatosensory receptors.

A True **B** False

86. At the end of the auditory canal is the ———, which vibrates after it is struck with sound waves.

A auricle **B** malleus **C** incus **D** tympanic membrane

87. The inner surface of each eyelid is a thin membrane known as the:

A lacrimal duct **B** palpebral conjunctiva **C** cornea **D** superior oblique

88. The dorsal column system and the ——— are two major pathways that bring sensory information to the brain.

A spinothalamic tract **B** nucleus gracilis **C** medial lemniscus **D** nucleus cuneatus

89. Sound localization is achieved by the brain calculating the interaural ——— difference and the interaural intensity difference.

A frequency **B** speed **C** level **D** time

90. Because of the overlapping field of view between two eyes, the brain can estimate the distance of stimuli based on binocular depth cues.

A True **B** False

91. The ——— are responsible for moving the eyes in response to visual stimuli.

A cone photoreceptors **B** frontal eye fields **C** corticospinal tract **D** medulla

92. The ——— cortex is located in the precentral gyrus of the frontal lobe.

A prefrontal **B** primary motor **C** premotor **D** supplementary motor

93. There are typically ——— ganglia in the chain on either side of the spinal column.

A 18 **B** 20 **C** 23 **D** 26

94. The preganglionic parasympathetic fibers within cranial nerve III terminate in the ——— ganglion:

A otic **B** intramural **C** terminal **D** ciliary

95. A baroreceptor in the walls of the aorta and carotid sinuses senses organs stretching when blood volume or pressure increases.

A True **B** False

96. The amygdala is a group of nuclei in the ——— region of the temporal lobe.

A distal **B** medial **C** proximal **D** superior

97. ——— is an antagonist to the adenosine receptor.

A Pilocarpine **B** Clonidine **C** Cocaine **D** Caffeine

98. The limbic lobe is a region of structures arranged around the edges of the ——— that are involved in memory and emotion.

A cerebrum **B** cerebellum **C** brainstem **D** spinal cord

99. The cranial nerve exam tests the function of the 12 cranial nerves and the central and peripheral structures associated with them.

A True **B** False

100. The inability to form new memories is a condition called:

A retrograde amnesia **B** anterograde amnesia **C** episodic memory **D** procedural memory

101. The ——— has autonomic functions in the thoracic and superior abdominal cavities.

A abducens nerve **B** vestibulocochlear nerve **C** olfactory **D** vagus nerve

102. The opening of the oral cavity into the pharynx is known as the:

A uvula **B** hard plate **C** fauces **D** salivary duct

103. Somatic senses are incorporated mostly into the skin, muscles, or:

A nervous tissue **B** cartilage **C** joints **D** tendons

104. ——— is an excess contraction in resistance to stretch.

A Spasticity **B** Fibrillation **C** Clasp-knife response **D** Fasciculation

105. ——— signaling requires more time than neural signaling to prompt a response in target cells.

A Paracrine **B** Endocrine **C** Autocrine **D** Synaptic

106. Hormones derived from lipids include:

A proteins **B** peptides **C** steroids **D** amines

107. The ——— is a structure of the diencephalon of the brain located anterior and inferior to the thalamus.

A hypothalamus **B** infundibulum **C** cerebellum **D** frontal lobe

108. The ——— hormone stimulates the adrenal cortex to secrete corticosteroid hormones such as cortisol.

A adrenocorticotropic **B** thyroid-stimulating **C** Luteinizing **D** growth

109. The parathyroid hormone (PTH) is the major hormone involved in the regulation of blood calcium levels.

A True **B** False

110. The ——— produces the hormone insulin and makes up approximately 75 percent of each pancreatic islet.

A alpha cell **B** beta cell **C** delta cell **D** PP cell

111. ——— is a disorder in adults caused when abnormally high levels of GH trigger growth of bones in the face, hands, and feet.

A Gigantism **B** Goiter **C** Acromegaly **D** Hyperparathyroidism

UNIT 4: **FLUIDS AND TRANSPORT**

112. Plasma is composed primarily of water. In fact, it is about ——— percent water.

A 68 **B** 92 **C** 75 **D** 82

113. In the lungs, hemoglobin picks up oxygen, which binds to the iron ions, forming:

A oxyhemoglobin **B** deoxyhemoglobin **C** hypoxemia **D** carbaminohemoglobin

114. The ——— is a major component of the body's defenses against disease.

A erythrocyte **B** leukocyte **C** bilirubin **D** reticulocyte

115. Platelets are key players in hemostasis, the process by which the body seals a ruptured blood vessel and prevents further loss of blood.

A True **B** False

116. When a portion of a thrombus breaks free from the vessel wall and enters the circulation, it is referred to as a/an:

A thrombosis **B** fibrinolysis **C** lymphoblast **D** embolus

117. ——— is the formation of a blood clot; part of the process of hemostasis.

A Hemoblast **B** Coagulation **C** Diapedesis **D** Thrombocytosis

118. The great veins, the superior and inferior venae cavae, and the great arteries, are attached to the ——— surface of the heart.

A posterior **B** anterior **C** inferior **D** superior

119. The right ventricle pumps deoxygenated blood into the ———, which leads toward the lungs.

A inferior vena cava **B** left atrium **C** pulmonary trunk **D** mitral valve

120. The septum between the atria and the ventricles is known as the atrioventricular septum.

A True **B** False

121. The walls of the ventricle are lined with ———, ridges of cardiac muscle covered by the endocardium.

A purkinje fibers **B** trabeculae carneae **C** chordae tendineae **D** cardiac plexus

122. ——— supply blood to the myocardium and other components of the heart.

A Coronary arteries **B** Marginal arteries **C** Atrial arteries **D** Pulmonary arteries

123. Normal cardiac rhythm is established by the sinoatrial node, a specialized clump of myocardial conducting cells.

A True **B** False

124. There are five prominent points on the ECG: the P wave, the ———, and the T Wave.

A O wave **B** QRS complex **C** V wave **D** XY complex

125. In this type of heart block, the ECG would reveal some P waves not followed by a QRS complex, while others would appear normal:

A partial **B** complete **C** first-degree **D** second-degree

126. Individuals are cautioned to monitor their HR to ensure they stay within the target heart rate range between:

A 120 and 160 bpm **B** 60 and 100 bpm **C** 110 and 130 **D** 130 and 150

127. ——— refers to the tension that the ventricles must develop to pump blood effectively against the resistance in the vascular system.

A Preload **B** Afterload **C** Contractility **D** Venous return

128. The heart forms from ——— around 18 to 19 days after fertilization.

A ectoderm **B** endoderm **C** mesoderm **D** cardiogenic cords

129. The ——— is composed of epithelial and connective tissue layers.

A tunica media **B** tunica intima **C** tunica externa **D** arteriole

130. The tunica externa is a substantial sheath of connective tissue composed primarily of collagenous fibers.

A True **B** False **C** **D**

131. If an artery or arteriole constricts to one-half of its original radius, the resistance to flow will increase ——— times.

A 1.5 **B** 2 **C** 4 **D** 16

132. The net filtration pressure represents the interaction of the hydrostatic and osmotic pressures, driving fluid ——— the capillary.

A out of **B** into **C** near **D** to reabsorb within

133. As little as 30 minutes of exercise over the course of each day has been shown to lower the rate of heart attack by nearly 50 percent.

A True **B** False

134. ——— occurs when arterioles lose their normal muscular tone and dilate dramatically.

A Cardiogenic shock **B** Vascular shock **C** Anaphylactic shock **D** Septic shock

135. The ——— provides blood to the muscles of the thoracic cavity and the vertebral column.

A pericardial artery **B** esophageal artery **C** intercostal artery **D** superior phrenic artery

136. An ovarian artery is considerably ——— than a testicular artery.

A longer **B** shorter **C** wider **D** narrower

137. Blood from the brain and the superficial facial vein flow into each:

A internal jugular vein **B** azygos vein **C** superior vena cava **D** subclavian vein

138. Blood supply from the liver drains into each ——— and directly into the inferior vena cava.

A phrenic vein **B** hepatic vein **C** renal vein **D** adrenal vein

139. The ——— is a temporary blood vessel that branches from the umbilical vein, allowing freshly oxygenated blood from the placenta.

A ductus arteriosus **B** foramen ovale **C** fossa ovalis **D** ductus venosus

140. Nervi Vasorum are small nerve fibers found in arteries and veins that trigger contraction of the smooth muscle in their walls.

A True **B** False

141. Humans have about ——— lymph nodes throughout the body.

A 400-500 **B** 500-600 **C** 600-700 **D** 700-800

142. ——— are lymphoid nodules located along the inner surface of the pharynx and are key to developing immunity to oral pathogens.

A Granzymes **B** Mast cells **C** Tonsils **D** Thymocytes

143. The primary barrier to the entrance of microorganisms into the body is the:

A lysozyme in the oral cavity **B** acidity of the stomach **C** mucous layer of the GI tract **D** skin

144. ——— are T Cells that kill target cells by inducing apoptosis using the same mechanism as Natural Killer (NK) cells.

A Cytotoxic T cells (Tc) **B** Regulatory T Cells (Treg) **C** Helper T cells (Th) **D** Memory T cells

145. This class of antibody is the one that crosses the placenta to protect the developing fetus from disease:

A IgM **B** IgG **C** IgA **D** IgE

146. ——— occurs with diseases such as systemic lupus erythematosus, where soluble antigens accumulate in the blood to blood vessel linings.

A Delayed hypersensitivity **B** Type III hypersensitivity **C** Type II hypersensitivity **D** Immediate Hypersensitivity

147. A natural killer cell (NK) is a cytotoxic lymphocyte of innate immune response.

A True **B** False

UNIT 5: **ENERGY, MAINTENANCE, AND ENVIRONMENTAL EXCHANGE**

148. The ——— is the concave surface that connects the apex of the nose to the upper lip.

A dorsum nasi **B** philtrum **C** bridge **D** ala

149. The ——— help(s) maintain equal air pressure throughout the alveoli and lung.

A alveolar sac **B** alveolar duct **C** alveolar pores **D** alveolus

150. Intrapleural pressure remains approximately ——— Hg throughout the breathing cycle.

A -1 mm **B** -2 mm **C** -3 mm **D** -4 mm

151. ——— describes the behavior of gases when they come into contact with a liquid, such as blood.

A Dalton's law **B** Henry's law **C** Boyle's law **D** Wolff's law

152. The ——— is a phenomenon that arises from the relationship between pH and oxygen's affinity for hemoglobin.

A chloride shift **B** Haldane effect **C** Root effect **D** Bohr effect

153. ——— is a process of adjustment that the respiratory system makes due to chronic exposure to high altitudes.

A Inspiration **B** Acclimatization **C** Vital capacity **D** Inspiratory reserve volume

154. The pharynx propels food from the oral cavity to the ——— and lubricates food and passageways.

A stomach **B** esophagus **C** small intestine **D** large intestine

155. Perhaps the most important ingredient in saliva from the perspective of digestion is:

A glycoproteins **B** ions **C** salivary amylase **D** growth factors

156. The ——— is the point where the esophagus connects to the stomach and through which food passes into the stomach.

A cardia **B** fundus **C** pylorus **D** ruga

157. The coiled tube of the small intestine is subdivided into three regions: the duodenum, jejunum, and ileum.

A True **B** False

158. The right colic flexure (hepatic flexure) and becomes the:

A sigmoid colon **B** transverse colon **C** ascending colon **D** left colic flexure

159. A hepatocyte is the liver's main cell type, accounting for around ——— percent of the liver's volume.

A 30 **B** 80 **C** 50 **D** 60

160. The three lipases responsible for lipid digestion are lingual lipase, gastric lipase, and:

A pancreatic lipase **B** pancreatic nuclease **C** ribonuclease **D** phosphatase

161. The ——— is a pointed tooth is used for tearing and shredding food.

A cuspid **B** molar **C** dens **D** deciduous tooth

162. Of the four major macromolecular groups that are processed by digestion, ——— are considered the most common source of energy.

A proteins **B** nucleic acids **C** lipids **D** carbohydrates

163. Cortisol, ———, and adrenaline/epinephrine are examples of catabolic hormones that help regulate metabolic processes.

A insulin **B** glucagon **C** estrogen **D** testosterone

164. To start ———, citrate synthase combines acetyl CoA and oxaloacetate to form a six-carbon citrate molecule.

A the Calvin cycle **B** glycolysis **C** the urea cycle **D** the Krebs cycle

165. When the food-gastric juice mixture enters the small intestine, the pancreas releases ——— to neutralize the HCl.

A pepsin **B** elastase **C** sodium bicarbonate **D** chymotrypsin

166. ——— is the transfer of heat by two objects that are in direct contact with one another.

A Convection **B** Conduction **C** Radiation **D** Evaporation

167. The amount of minerals in the body is small—only ——— percent of the total body mass.

A 1 **B** 2 **C** 3 **D** 4

168. The kidneys must produce a minimum urine volume of about ——— mL/day to rid the body of wastes.

A 250 **B** 350 **C** 500 **D** 600

169. The ——— is the entry and exit site for structures servicing the kidneys: vessels, nerves, lymphatics, and ureters.

A calyces **B** renal hilum **C** medulla **D** renal papillae

170. The volume of filtrate formed by both kidneys per minute is termed the glomerular filtration rate (GFR).

A True **B** False

171. A principal cell possesses channels for the recovery or loss of sodium and:

A magnesium **B** sugar **C** potassium **D** insulin

172. Anuria is the absence of urine produced; production of ——— mL or less per day.

A 50 **B** 40 **C** 30 **D** 20

173. Intracellular fluid (ICF) makes up about ——— of the total water in the human body.

A 40% **B** 60% **C** 75% **D** 50%

174. The kidney excretes ——— milliosmoles of solutes per day.

A 200-1000 **B** 500-1400 **C** 50-1500 **D** 100-1200

175. ——— is released if blood levels of potassium increase, if blood levels of sodium severely decrease, or if blood pressure decreases.

A ADH **B** Aldosterone **C** Angiotensin **D** ANP

176. During the conversion of CO_2 into bicarbonate, hydrogen ions liberated in the reaction are buffered by:

A phosphate **B** bicarbonate-carbonic acid **C** Protein **D** Hemoglobin

177. ——— means a person has lower-than-normal levels of sodium in the blood.

A Hypernatremia **B** Hypocalcemia **C** Hyponatremia **D** Hypocapnia

UNIT 6: **HUMAN DEVELOPMENT AND THE CONTINUITY OF LIFE**

178. The testes are each approximately ——— cm in length and are housed within the scrotum.

A 2 to 3 **B** 3 to 4 **C** 4 to 5 **D** 5 to 6

179. The prostate normally doubles in size during puberty. At approximately age ———, it gradually begins to enlarge again.

A 25 **B** 30 **C** 40 **D** 50

180. Testosterone, an androgen, is a steroid hormone produced by:

A Leydig cells **B** Theca cells **C** granulosa cells **D** Sertoli cells

181. The middle region of the uterine tube, called the ———, is where fertilization often occurs.

A isthmus **B** infundibulum **C** corpus luteum **D** ampulla

182. The innermost layer of the uterus is called the:

A perimetrium **B** myometrium **C** endometrium **D** fundus

183. Breast milk is produced by the ———, which are modified sweat glands.

A lactiferous ducts **B** mammary glands **C** lactiferous sinus **D** areolar glands

184. The release of LH occurs primarily at night during sleep and precedes the physical changes of puberty by several years.

A True **B** False

185. The ——— is a wide, distal portion of the uterine tube terminating in fimbriae.

A myometrium **B** infundibulum **C** fundus **D** mons pubis

186. If sperm do not encounter an oocyte immediately, they can survive in the uterine tubes for another ——— days.

A 2 **B** 3 **C** 2-4 **D** 3-5

187. Following fertilization, the zygote and its associated membranes, together are referred to as the:

A morula **B** conceptus **C** blastocoel **D** trophoblast

188. The ——— connects to the conceptus via the umbilical cord, which carries deoxygenated blood and wastes from the fetus.

A amnion **B** yolk sac **C** placenta **D** mesoderm

189. During weeks ——— of fetal development, the brain continues to expand, the body elongates, and ossification continues.

A 9-12 **B** 16-20 **C** 21-28 **D** 29-31

190. The pituitary hormone prolactin is instrumental in the establishment and maintenance of breast milk supply.

A True **B** False

191. ——— inheritance patterns are much more rare because neither heterozygotes nor homozygotes survive.

A Recessive lethal **B** Dominant lethal **C** Incomplete dominance **D** Codominance

192. A(n) ——— is a tightly packed sphere of blastomeres that has reached the uterus but has not yet implanted itself.

A embryo **B** morula **C** diploid **D** zygote

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