

Human Anatomy & Physiology: Fall Final Exam Review

Chapter 1:

1. Anatomy is a term which means the study of _____.

- A. physiology
- B. morphology
- C. cell functions
- D. human functions

2. The study dealing with the explanations of how an organ works would be an example of _____.

- A. anatomy
- B. cytology
- C. teleology
- D. physiology

3. The process of turning molecules that are ingested into forms that are compatible with the organism is _____.

- A. digestion
- B. absorption
- C. assimilation
- D. circulation

4. The exchanging of gases for the purpose of producing energy is called

- A. breathing
- B. respiration
- C. circulation
- D. responsiveness

5. The removal of a compound that the body no longer requires is called

- A. secretion
- B. excretion
- C. movement
- D. digestion

6. When a nurse takes someone's temperature, they are directly assessing a

- A. metabolic activity
- B. sign of illness
- C. vital sign
- D. core temperature

7. The following are essential needs of the body except which one?

- A. water
- B. chemicals
- C. set point
- D. pressure

8. The force that water exerts on a system is referred to as the _____.

- A. hydrophilic factor
- B. hydrostatic pressure
- C. atmospheric pressure
- D. osmotic pressure

9. The transportation of heat in the body is mainly a property of the _____ it contains.

- A. food
- B. oxygen
- C. water
- D. pressure

10. The process in which cells and organisms are able to maintain a stable balance of internal and external substances and forces is called _____.

- A. equilibrium
- B. adaptation
- C. adjustment
- D. homeostasis

11. Which of the following is an example of a normal homeostatic event?

- A. sweating during a test
- B. shivering when it is cold
- C. developing a headache
- D. muscle strain

12. The following are examples of homeostatic parameters or body values except which one?

- A. heart rate
- B. blood pressure
- C. blood glucose levels
- D. insulin production

13. A decrease in blood glucose that causes the inhibition of insulin is an example of _____.

- A. positive feedback
- B. negative feedback
- C. abnormal function
- D. the action of glucagon

14. The following is an example of positive feedback:

- A. glucagon raises blood sugar
- B. insulin lowers blood glucose
- C. a temperature of 100.2F causes a further increase
- D. 100.1F is followed by 98.6F

15. A system is defined as a group of _____ that function together.

- A. cells
- B. tissues
- C. molecules
- D. organs

16. The structures called _____ are intracellular areas with specific living functions.

- A. inclusions
- B. organs
- C. organelles
- D. macromolecules

17. Proteins and carbohydrates are classified as _____.

- A. macromolecules
- B. microbes
- C. organelles
- D. atoms

18. Which of the following is not part of the axial body?

- A. head
- B. arm
- C. neck
- D. trunk

19. Simple squamous epithelium is a _____ term.

- A. tissue
- B. cell
- C. organ
- D. pathology

20. The _____ separates the thoracic from abdominal cavities.

- A. pelvis
- B. rib cage
- C. diaphragm
- D. peritoneum

Chapter 1 (see pages 26-27 for a summary review)

1. Define anatomy and physiology and explain how they are related.
2. How do body parts at different levels of organization vary in complexity?
3. Describe the ten characteristics of life?
4. List and describe five requirements of organisms.
5. What is the difference between positive and negative feedback systems?
6. Distinguish between the axial and appendicular portions of the body.
7. Name the major body cavities and the organs/location of each.
8. How does a parietal membrane differ from a visceral membrane?
9. What do the terms pericardium, pleura, and peritoneal refer to?
10. Review relative position, body section, and body region terminology.

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Chapter 2:

21. An electrically charged small negative particle which encircles a nucleus is the _____.
A. proton
B. neutron
C. electron
D. positron
22. The nucleus of an atom always has a _____ charge.
A. unstable
B. positive
C. negative
D. neutral
23. What is the charge of an elemental atom?
A. negative
B. positive
C. neutral
D. constantly changing
24. Which of these has the highest atomic weight?
A. magnesium
B. fluorine
C. lithium
D. sodium
25. Two atoms with the same atomic number but different atomic weights are called _____.
A. elements
B. isotopes
C. molecules
D. radioactive
26. What does a radioactive element do?
A. lose neutrons
B. lose protons
C. undergoes nuclear disintegration
D. change their electron shells
27. When atoms react chemically they gain, lose, or share _____.
A. protons
B. electrons
C. neutrons
D. atomic weights
28. Radiation in the form of two protons and two neutrons is the _____.
A. gamma ray
B. electron
C. beta particle
D. alpha particle
29. The second electron shell can hold a maximum of _____ electrons.
A. 2
B. 4
C. 6
D. 8
30. The only elements that have eight electrons in their outer orbitals and are therefore stable are the _____.
A. metals
B. non-metals
C. gases
D. noble gases
31. Chemically stable elements will not _____ under ordinary conditions.
A. become radioactive
B. chemically react
C. disintegrate
D. undergo nuclear decay
32. What happens to sodium when it loses its outer electron?
A. it becomes a negative ion
B. it becomes radioactive
C. it becomes a positive ion
D. nothing
33. A covalent bond is formed whenever two atoms _____ electrons.
A. lose
B. share
C. gain
D. keep their
34. Carbon atoms tend to form _____.
A. covalent bonds
B. cations
C. anions
D. ionic bonds

Chapter 2 (see pages 72-73 for a summary review)

1. What are the four most abundant elements in the human body?
2. Review atomic structure.
3. Define isotope.
4. Distinguish between an ionic bond and a covalent bond.
5. What is alkalosis and acidosis?
6. What is a catalyst?
7. Where will acids and bases fall on a pH scale? A.
8. Compare the chemical composition of carbohydrates, lipids, proteins, and nucleic acids.
9. Distinguish between saturated and unsaturated fats

Chapter 3:

35. What is the basic structural unit of the body?
A. tissue
B. organ
C. organelle
D. cell
36. A ribosome is an example of a _____.
A. nuclear membrane
B. organelle
C. inclusion
D. protein
37. A cell membrane allows only needed substances to pass and is therefore called _____.
A. permeable
B. passive
C. active
D. selective
38. A human cell membrane is comprised of the following except which one?
A. lipids
B. proteins
C. carbohydrates
D. nucleic acids
39. The following terms belong together except which one?
A. protein
B. phospholipid
C. hydrophilic ends
D. hydrophobic ends
40. The selective movement of ions through a membrane occurs through areas called _____.
A. pores
B. peripheral protein regions
C. channels
D. receptors
41. The _____ functions to package molecules into vesicles that can be transported out of a cell.
A. ribosome
B. nucleus
C. Golgi apparatus
D. centriole apparatus
42. A combination of a sugar with a protein is a _____.
A. lipoprotein
B. glycoprotein
C. complex protein
D. nuclear protein
43. The _____ functions as a sac-like or tubular network of structures that provides transport.
A. ribosome
B. lysosome
C. endoplasmic reticulum
D. centriole microtubules
44. The _____ is the source of most of the cellular energy.
A. ribosome
B. cytosol
C. mitochondrion
D. lysosome

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45. The ____ contain enzymes that are used to degrade foreign particles as well as cell structures.

- A. centrioles
- B. lysosomes
- C. peroxisomes
- D. mitochondria

Chapter 3 (see pages 109-110 for a summary review)

1. Describe how the shape of a cell is influenced by its function.
2. Describe the chemical structure of a cell membrane.
3. Explain the function of membrane proteins.
4. List 12 organelles in animal cells and their functions.
5. Compare diffusion, facilitated diffusion, and osmosis.
6. Distinguish between solutions that are hypertonic, hypotonic, and isotonic.
7. Explain endocytosis, pinocytosis, phagocytosis, and exocytosis.
8. What is the cell cycle and what does it involve?
9. What is cancer?
10. What is the difference between totipotent and pluripotent?

Chapter 5:

46. A group of cells that performs a specific function is organized as a ____.

- A. organ
- B. tissue
- C. system
- D. organelle

47. The following belong together except which one?

- A. epithelium
- B. bone
- C. connective
- D. nervous

48. The ____ tissue is considered a type of lining for body areas.

- A. epithelial
- B. connective
- C. nervous
- D. muscle

49. Which tissue is thin and specialized for the diffusion of gases and ions?

- A. cuboidal epithelial
- B. connective
- C. simple squamous epithelium
- D. simple columnar epithelium

50. Simple ____ epithelial cells are specialized for secretion and are found in glands such as the pancreas.

- A. columnar
- B. cuboidal
- C. squamous
- D. transitional

51. The gastrointestinal tract is primarily lined with ____.

- A. transitional cells
- B. stratified squamous epithelium
- C. simple columnar epithelium
- D. connective tissue

52. Microvilli are found on the apical surface of ____ cells.

- A. simple columnar
- B. transitional
- C. pseudostratified
- D. squamous

53. The respiratory passages are lined with ____ cells.

- A. columnar
- B. cuboidal
- C. transitional
- D. pseudostratified columnar

54. Cilia have the function of removing foreign particles and mucus from the surface of the ____ system.

- A. digestive
- B. reproductive
- C. integumentary
- D. respiratory

55. The ____ lining of the urinary bladder allows it to stretch without tearing or losing integrity.

- A. cuboidal
- B. transitional
- C. muscle
- D. squamous

56. The sebaceous glands of the skin produce secretions by the ____ method of secretion.

- A. merocrine
- B. eccrine
- C. holocrine
- D. apocrine

57. The ____ tissue has the most numerous and diverse types of cells.

- A. nervous
- B. connective
- C. muscle
- D. epithelial

58. The background that connective cells is in is termed the ____.

- A. ground substance
- B. matrix
- C. fiber network
- D. stroma

59. The ____ cells are the ones that produce collagen.

- A. fibroblast
- B. macrophage
- C. wandering cells
- D. histiocytes

60. Which cells are the first to phagocytize foreign particles in the tissues such as bacteria in a wound?

- A. fibroblasts
- B. white blood cells
- C. macrophages
- D. mast cells

61. The source of the anticoagulant heparin is the ____ cell.

- A. mast
- B. macrophage
- C. fibroblast
- D. neutrophil

Chapter 5 (see pages 165-167 for a summary review)

1. What are the four major tissue types in the human body?
2. Describe the general structure and any special features of each type of epithelium.
3. Distinguish between exocrine and endocrine glands.
4. Describe the three major types of connective tissue cells.
5. List the 5 categories of general connective tissues and the 3 specialized connective tissues. Identify which connective tissue cells each are mainly composed of.
6. How does the extracellular matrix differ in various connective tissues.
7. Describe the 3 epithelial membranes and 1 membrane formed from connective tissue found in the body.
8. What are the characteristics of the three types of muscle tissue?
9. What are the two types of cells found in nervous tissue and what is their function?

Chapter 6:

62. The skin is called the ____ membrane.

- A. epithelial
- B. serous
- C. synovial
- D. cutaneous

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63. The _____ separates the epidermis from the dermis.
A. epithelial cells B. presence of adipose
C. basement membrane D. subcutaneous layer
64. The youngest cells would be found in the stratum _____.
A. corneum B. basale
C. spinosum D. granulosum
65. Where is the greatest amount of keratin found?
A. dermis B. stratum basale
C. stratum corneum D. stratum spinosum
66. The stratum basale is also called the stratum _____.
A. corneum B. spinosum
C. granulosum D. germinativum
67. The following terms belong together except which one?
A. bedsore B. necrosis
C. decubitus ulcer D. pressure ulcer
68. The pigment producing melanocytes are found in the _____ layer.
A. spinosum B. granulosum
C. basale D. corneum
69. What is the major factor that protects skin from the damaging effects of sunlight?
A. moisture in the skin B. the thickness of the stratum corneum
C. the presence of melanin D. active mitosis
70. The following are functions of the skin except which one?
A. protects joints
B. prevents water loss
C. reduces the chance of infection
D. protects against harmful chemicals
71. Skin cancer most likely arises from which type cells?
A. dermal B. melanocytes
C. epithelial cells D. stratum corneum cells
72. The _____ structures are associated with detecting deep pressure within the skin.
A. Meissner corpuscles B. free nerve endings
C. Pacinian corpuscles D. motor nerve fibers
73. Most of the sensory fibers and structures are located in the _____ region.
A. dermis B. subcutaneous
C. epidermis D. stratum basale
74. Tactile corpuscles respond to a stimulus of _____.
A. pressure B. heat
C. light touch D. cold objects
75. The subcutaneous layer can also be referred to as the _____.
A. dermis B. epidermis
C. stratum malpighii D. hypodermis
76. The presence of _____ is an indication of being in the hypodermis.
A. melanin B. keratin
C. adipose tissue D. blood vessels
77. The part of the hair from the surface into the dermis is the _____.
A. shaft B. follicle
C. root D. dermal papilla

Chapter 6 (see pages 190-191 for a summary review)

- List six functions of the skin
- What are the two tissue layers in the skin called?
- Describe the structure and explain the function of the subcutaneous layer.
- Briefly describe the structure of the epidermis.
- What is keratinization?
- What is the function of melanocytes
- Describe the structure of the dermis.
- List and identify the function of each accessory organ found in the integumentary system.
- What is classified as a 1st degree burn? 2nd degree burn? 3rd degree burn?
- What is the difference between an autograph and a homograph?

Chapter 7

78. The bones of the upper arm are classified as _____ bones.
A. short B. long
C. irregular D. flat
79. The patella is classified as a/an _____ bone by some anatomists.
A. short B. flat
C. sesamoid D. irregular
80. The long shaft of a bone such as the femur is called its _____.
A. epiphysis B. epiphyseal plate
C. periosteum D. diaphysis
81. The _____ allows a bone to increase its diameter during periods of growth.
A. diaphysis B. periosteum
C. endosteum D. epiphysis
82. The articular ends of long bones are comprised of _____ tissue.
A. hyaline cartilage B. fibrous
C. hematopoietic D. bone
83. Spongy bone is also referred to as _____ bone.
A. cancellous B. compact
C. cortical D. fibrous
84. The center of each osteon contains the _____.
A. osteoblasts B. Volkmann canal
C. Haversian canal D. lacunae
85. Osteons have a _____, which provides a means of communication between them.
A. blood vessel B. osteonic canal
C. Volkmann canal D. canaliculi network
86. Which of these developed by intramembranous ossification?
A. femur B. frontal bone
C. ulna D. radius
87. During osteogenesis, which of the following cells would appear first?
A. fibroblast B. osteocyte
C. osteoblast D. osteoclast

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88. Which of these is the most differentiated and oldest?

- A. fibroblast
B. osteoblast
C. osteocyte
D. chondroblast

89. Which bone developed by endochondral ossification?

- A. tibia
B. parietal
C. occipital
D. temporal

90. The _____ represents an area for growth in the length of a long bone.

- A. diaphysis
B. epiphysis
C. epiphyseal disk
D. periosteum

91. The _____ contain enzymes capable of breaking down the calcium matrix of bone tissue.

- A. osteoblasts
B. osteoclasts
C. fibroblasts
D. osteogenic cells

92. When do the bones of the sternum become completely ossified?

- A. 5 years
B. 12 years
C. 20 years
D. 25 years

93. Most cases of bone cancer probably involve an increase in the activity of the _____ cells.

- A. osteoblast
B. osteocyte
C. osteoclast
D. fibroblast

Chapter 7

- List and give examples of the 5 classifications of bone.
- Describe the 5 major parts of a long bone.
- How does compact and spongy bone differ in structure?
- What is the difference between intramembranous bones and endochondral bones?
- List the steps in the growth of a long bone.
- Briefly describe the major functions of the skeletal system.
- Compare red and yellow bone marrow.
- What is the purpose of fontanelles?

*** Review bones in the following diagrams:

Figure 7.15

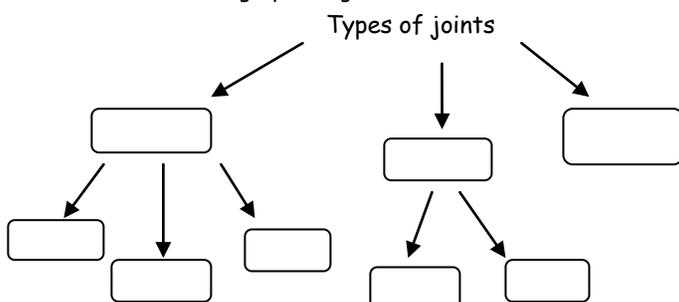
Figure 7.19

Figure 7.32

Figure 7.38

Chapter 8

- Finish the graphic organizer:



- What is the function of synovial fluid, meniscus, and bursae?

3. Describe the 6 types of synovial joints and give examples of each.

4. Complete Part B #1-9 on page 284 of the text book

Chapter 9

94. Which of the following types of muscle are found in the stomach?

- A. cardiac
B. skeletal
C. smooth
D. striated

95. A large broad sheet of connective tissue, such as on the abdomen, is called a/an _____.

- A. aponeurosis
B. epimysium
C. perimysium
D. endomysium

96. The membrane that is the closest to the individual muscle fiber is the _____.

- A. aponeurosis
B. epimysium
C. perimysium
D. endomysium

97. A group of skeletal muscle fibers is called a/an _____.

- A. perimysium
B. fascicle
C. epimysium
D. tendon

98. The structure that connects muscles to bones is the _____.

- A. aponeurosis
B. fascicle
C. tendon
D. ligament

99. The muscle cells within a group such as the biceps brachii are individually called _____.

- A. sarcolemmas
B. fibers
C. myocyte
D. myofibrils

100. The fiber cell membrane is termed the _____.

- A. myofibril
B. myosin
C. myofilament
D. sarcolemma

101. Which of the following does NOT belong with the others?

- A. myofilament
B. myosin
C. sarcoplasmic reticulum
D. actin

102. The smallest, functional unit of contraction is the _____.

- A. fiber
B. sarcomere
C. filament
D. myofibril

103. The I bands in a sarcomere are made of _____.

- A. myosin
B. actin and myosin
C. tropomyosin
D. actin

104. The gap between the muscle and a nerve is the _____.

- A. synapse
B. motor end plate
C. myoneural junction
D. motor neuron

105. The chemical that crosses a neuromuscular gap is _____.

- A. sodium
B. a protein
C. a neurotransmitter
D. calcium

106. The combination of a neuron and the muscle fiber it associates with is called a/an _____.

- A. fascicle
B. motor end plate
C. motor unit
D. myoneural junction

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107. When a muscle is at rest, which of the following is not associated chemically with the others?

- A. actin
- B. myosin
- C. troponin
- D. tropomyosin

108. During the contraction of a sarcomere, calcium ions bind with the protein

- A. actin
- B. myosin
- C. troponin
- D. tropomyosin

Chapter 9

1. Describe how connective tissue is associated with a skeletal muscle.
2. Describe the structure of skeletal muscle fibers and explain why they are striated.
3. What is a motor unit?
4. Summarize the major events that occur during muscle contraction and relaxation.
5. What is the role of glucose, glycogen, ATP, creatine phosphate, and myoglobin in muscle contraction?
6. How does lactic acid and oxygen debt relate to muscle fatigue?
7. How do skeletal muscles affect body temperature?
8. Explain threshold stimulus, all-or-none response, and muscle tone.
9. Compare red and white muscle fibers.
10. Create a Venn diagram to compare the general characteristics of skeletal, smooth, and cardiac muscles.
11. Explain the role of peristalsis.
12. Distinguish between a muscle's origin and insertion.
13. What is the relationship between the prime mover, synergist, and antagonist?

*** Review muscles in the following diagrams:

Figure 9.23

Figure 9.25

Chapter 10

109. The central nervous system is comprised of the brain and ____.

- A. cranial nerves
- B. spinal cord
- C. peripheral nerves
- D. spinal nerves

110. The ____ of a neuron carries the impulse towards the nucleus.

- A. cell body
- B. myelin
- C. axon
- D. dendrite

111. Which part of a neuron comes in close proximity to another neuron at the synapse?

- A. synaptic knob
- B. dendrite
- C. axon
- D. collateral fiber

112. The phagocytic cells in the CNS are the ____.

- A. astrocytes
- B. microglia
- C. oligodendrocytes
- D. ependymal cells

113. The ____ cells provide a means of acquiring nutrients in the brain.

- A. astrocyte
- B. microglia
- C. ependymal
- D. oligodendrocyte

114. The minimal stimulus needed to cause a neuron to transmit an impulse is called the ____.

- A. action potential
- B. resting potential
- C. threshold
- D. refractory period

115. Saltatory conduction occurs when an impulse jumps from ____.

- A. axon to dendrite
- B. node to node
- C. dendrite to axon
- D. node of Ranvier to axon

116. Acetylcholine is decomposed by ____ almost as fast as it is released.

- A. monoamine oxidase
- B. MAO inhibitors
- C. norepinephrine
- D. acetylcholinesterase

117. A morphine-like pain suppressing brain substance is ____.

- A. substance P
- B. beta-endorphin
- C. nicotine
- D. neuropeptide

118. Which of the following does not belong with the rest?

- A. summation
- B. facilitation
- C. divergence
- D. convergence

119. Which type of short neuron is found in the retina?

- A. bipolar
- B. unipolar
- C. multipolar
- D. sensory

120. The following belong together except which one?

- A. multipolar
- B. motor
- C. sensory
- D. efferent

Chapter 10

1. What is the relationship between neuroglial cells and neurons?
2. What is the relationship between the PNS and the CNS?
3. Describe the general structure of a neuron.
4. Compare myelinated and unmyelinated neurons.
5. What are two ways that neurons can be classified?
6. Describe the general characteristics of bipolar, unipolar, and multipolar neurons.
7. Describe the general characteristics of sensory neurons, interneurons, and motor neurons.
8. Describe the characteristics and functions of neuroglial cells in the CNS.
9. Describe the characteristics and functions of neuroglial cells in the PNS.
10. How is nerve impulses transmitted from one neuron to another? Explain the role of calcium in this process.
11. Describe the ion distribution during polarization, depolarization, and repolarization. How does the neuron achieve each of these states?