

Welcome to SLCC Anatomy!

These study tools have been designed to prepare you for the various anatomical systems you will learn this semester. Each study guide includes conceptual questions on the corresponding chapters. Questions applicable to lecture are in green and those in black are focused on your lab section.

*Please note that the authors of this study guide created it around Melanie Farr's and Dr. Eric Green's Lecture class and the lab manual. Your lecture could be organized differently depending on your instructor.

QUESTIONS

The Human Body: Orientation, Tissues, and the Skeletal System

Chapter 1: The Human Body: Orientation

1. What is anatomy?
2. What is Macroscopic/Gross Anatomy?
3. Define Systemic Anatomy, Regional Anatomy, Surface anatomy, and Pathological anatomy.
4. What is the study of physiology?
5. What is face up position?
6. What was face down position?
7. Explain anatomic position.
8. Define superior/inferior
9. Define proximal/distal
10. Define medial/lateral
11. Define ventral/dorsal
12. Define cranial/caudal
13. Define anterior/posterior
14. Define superficial/deep
15. Fill out the directional terms to these next 5 sentences:
 - a. The Brachial region is _____ to the antebrachial region.
 - b. The mammillary region is _____ to the umbilical region.
 - c. The cephalic region is _____ to the pectoral region.
 - d. The cubital region is _____ to the olecranon.
 - e. The epidermis is _____ to the dermis.
16. Which plane(s) are longitudinal?
17. Which plane(s) are cross sectional?
18. Which cavities belong to the dorsal cavity?
19. Which to the ventral?
20. What are the membranes called that have serous fluid? Also called serosa.

Chapter 4: Tissues

21. What are the four basic types of tissues?

22. What are the names of the categories that are based on the number of layers for Epithelial tissues?
 23. Where is the apical surface?
 24. Where is the basal surface?
 25. Define tight junctions
 26. Define adhering junctions.
 27. What does it mean to be avascular?
 28. Name the 6 possible functions of epithelial tissues?
 29. If you see cilia on a histology slide what two potential types of epithelium could it be?
 30. If you see goblet cells which two types of epithelial could it be?
 31. If you see microvilli then what epithelial tissue is it?
 32. What are the two types of glands?
 33. List the three types of multicellular exocrine glands.
 34. What are the 3 main types of connective tissue?
 35. List at least three of the functions of connective tissue?
 - 36.-45. Draw a table distinguishing the different connective tissues.*
- * This will be extremely important to be able to replicate and reference on the midterm especially if you have Dr. Eric Green or Melaney Farr!*
46. List the types of muscle tissue.
 47. Where do you find cardiac muscle tissue?
 48. Where can you find smooth muscle tissue?
 49. Which muscular tissues are uninucleated?
 50. What are cells within connective tissue surrounded by? Hint: will you take the red pill or the blue pill?
 51. What muscular tissue has striations?
 52. Which muscular tissue is branched?

Chapters 6-9: The Skeletal System

- 53-59. What are the four types of bone cells and explain the relationship between each cell. (For example what cell breaks down bone)
60. What are the proximal and distal ends of the bones called?
61. What is the epiphyseal line?
62. What is the shaft of a bone called? What are the layers of this shaft?
63. What is the medullary cavity? And what does it contain?
64. What minerals are stored by bones?
65. What is periosteum?
66. What is the cartilage on the ends of long bones?
67. What is the outer surface of bone called?
68. How many bones are in the adult human body?
69. How many bones in the appendicular skeleton?
70. How much of the human skeleton is replaced each year?
71. How many bones are in your axial skeleton?
72. What does exercise do to your skeleton?
73. What are flat bones?
74. What are two examples of irregular bones?
75. What is the Volkmann's canal (perforating canal)?
76. What membrane is lining the medullary cavity?
77. What is the function of spongy bone tissue?
78. Bones are levers for?
79. List 4 types of bone markings
80. Where does red marrow appear in adults? (3 locations)
81. True or false: Yellow marrow can act like red marrow when needed to?
82. What marrow is more common in adult bones?
83. What is the process of replacing other tissues with bone called?
84. What are the types of ossification? (There are 2 types)
85. What is osteoporosis?

86. What is a fontanelle?
87. Be able to list the steps of a fracture?
88. What is the fusion site of any two bones called on the skull called?
89. What are the names of each suture in the human adult skull?
90. What does the word trochlea mean?
91. What indicator separates the Supraspinous fossa and infraspinous fossa of the scapula?
92. What bones make up our lower jaw?
93. What is the epiphyseal plate?

Anatomy Chapters on Muscles, Skin, Nervous Organization and the Brain

Chapters 9-12- Muscle Function and Muscle Tissue

- 1) What is the difference between origin and insertion?
- 2) Muscles only _____ never _____.
- 3) Be able to explain prime mover/ agonist, antagonist, and synergist. Provide examples of each.
- 4) Explain Flexion, extension, abduction, adduction, circumduction, lateral rotation, medial rotation, supination, pronation, dorsiflexion, plantarflexion, inversion, eversion, protraction, retraction, elevation, depression and opposition. Also list a muscle that does each type of movement.
- 5) What is excitability?
- 6) What is contractibility?
- 7) What is extensibility?
- 8) What is elasticity?

- 9) What are the differences between smooth muscle, skeletal muscle and cardiac muscle? (i.e. how many nuclei and where they are located, shape of ends, voluntary or involuntary, etc...)
- 10) What are the 7 functions of muscle tissue?
- 11) What does sarco mean?
- 12) Is a muscle fiber a muscle cell? y
- 13) A whole skeletal muscle is wrapped by what connective tissue covering? And what type of connective tissue is it?
- 14) How does a skeletal muscle connective tissue covering connect to the bone?
- 15) What are bundles of muscle fibers/cells called? What is the connective tissue that covers it called?
- 16) What is the name of the connective tissue that surrounds an individual muscle cell/fiber?
- 17) What does highly vascular and innervated mean? Are muscles either of those?
- 18) How do skeletal muscles and cardiac/smooth muscles vary to help them contract?
- 19) What organelle is responsible for cellular respiration and is located into the sarcoplasm. Hint there are many of these because muscles require lots of energy.
- 20) What are the two reasons muscles are red?
- 21) Each muscle fibers has bundles of proteins which form cylinders called what?
- 22) What are sarcomeres?
- 23) What protein is associated with the A band?
- 24) What are the importance of Z discs?

- 25) What protein is associated with I band?
- 26) What is the H zone?
- 27) Stronger muscles have more _____.
- 28) What is the sliding filament theory?
- 29) Explain how skeletal muscle contracts.
- 30) What are the two myofilaments called that are arranged into myofibrils?
- 31) What is the significance of intercalated discs in cardiac muscle?
- 32) Explain how smooth muscle contracts?
- 33) What is peristalsis?

Chapter 5 – The Integumentary System

- 34) What is the largest organ in the body? How much does it weigh on average?
- 35) The integument is composed of which two layers?
- 36) What are the layers of the epidermis
- 37) What are the two cancers associated with stratum basale and how do they occur?
- 38) What is vasodilation and vasoconstriction?
- 39) Skin holds about _____ % of the blood of the body.
- 40) What are the 7 functions the skin?
- 41) What layer of skin is not integument proper?
- 42) How is the stratum basale attached to the basement membrane?
- 43) What are the columnar cells of the stratum basale called?
- 44) As cells are pushed up to the superficial surface of the skin they produce what water proofing protein?

- 45) What cells are primarily responsible for skin color? What do they produce and what colors does this pigment produce?
- 46) How does skin color variation happen?
- 47) Explain albinism and Vitiligo.
- 48) Explain differences between a suntan and sunburn.
- 49) What is the function of melanin?
- 50) What are the cells called that communicate with nerve fibers?
- 51) What are pigmented moles?
- 52) What is carotene and hemoglobin?
- 53) What cells are the immune cells located in the stratum spinosum? (name both names of this cell)
- 54) How thick is the stratum spinosum?
- 55) What are prickle cells? Does mitosis still occur here?
- 56) What is the cancer associated with stratum spinosum?
- 57) What layer of skin has a granular look? And how many layers does this layer have?
- 58) What is keratinization?
- 59) What layer of skin is only able to be seen in thick skin?
- 60) Why does stratum lucidum appear clear?
- 61) How many layers thick is the stratum corneum? What are the cells like?
- 62) What are holding the cells of the skin together laterally?

- 63) What are the two layers of the dermis? What type of connective tissue is composed of this?
- 64) What all can be found in the dermis?
- 65) How much percentage of body fat is stored in the subcutaneous layer? And what tissues make up the subcutaneous layer?
- 66) What is regeneration?
- 67) What is the process of fibrosis?
- 68) What are the 3 types of cells that are associated with fibrosis and what are their characterizations?
- 69) What happens with skin throughout life?
- 70) What layers of skin are damaged by first-degree, second-degree and third degree?
- 71) What are some examples of tissue transplantation?

Chapter 14- Fundamentals of Nervous System and Nervous Tissue

- 72) What are the 3 functions of the nervous system?
- 73) What part of the nervous system is in charge of integration?
- 74) What part of the nervous system is in charge of response?
- 75) What part of the nervous system is in charge of sensory?
- 76) The brain is located in the _____ cavity. The spine is located in the _____ cavity.
- 77) Sensations go to the _____ for integration. And all motor commands come _____ the CNS.
- 78) The brain and spinal cord are mostly composed of what matter?

- 79) What makes up white matter? What makes up gray matter?
- 80) What is the PNS mostly composed of?
- 81) What is a bundle of axons (or nerve fibers) called?
- 82) When you have a cluster of neuron cell bodies in the PNS what do you call it?
- 83) What is the tissue wrapped around a nerve?
- 84) What is a fascicle in reference to nerves? And what tissue is wrapped around the fascicles?
- 85) What tissue is wrapped around individual neurons/axons (not talking about myelin sheath)?
- 86) How many pairs of cranial nerves are there? And spinal nerves?
- 87) What types of neurons are contained in Sensory nerves, Motor Nerves, and Mixed Nerves?
- 88) What does the afferent division of the nervous system do? What does the efferent division responsible for?
- 89) What are sensory receptors?
- 90) What are the two types of sensory information carried by the afferent division?
Give at least 2 examples that explain the sensory.
- 91) What are the two types of motor information carried by the efferent division of the PNS? Explain each of these types.
- 92) The autonomic motor division is broken down into which two categories? Explain each of these divisions.

- 93) Neurons have a very high metabolic rate, which means they require a lot of what two things?
- 94) How do neurons transmit action potential to other cells? (Hint: Via what?)
- 95) What are afferent neurons, efferent and interneurons?
- 96) What is a multipolar neuron? Unipolar? And Bipolar? How are they classified?
- 97) What do Dendrites do? What do Axons do?
- 98) What is an axon hillock?
- 99) Axons can also be called what?
- 100) What do you call it when an axon branches in the middle? What about at the end?
- 101) What are the ends of branches (bulbous bulbs) of the neuron called? What do they store?
- 102) What makes the white matter of the brain white? What does it do?
- 103) What neuroglial cell myelinates the CNS axons? What about in the PNS?
- 104) What is a synapse?
- 105) What is a true synapse? What is a neuromuscular synapse? What is a neuroglandular synapse?
- 106) What is the difference between presynaptic neuron and postsynaptic neuron?
- 107) What are neuroglial cells? They are _____x more numerous than neurons?
- 108) Be able to explain each of these cells, their function, and their location:
astrocytes, oligodendrocytes, Ependymal cells and Microglia.

109)What are satellite cells ? What are schwann cells/neurolemmocytes? Where are both of these types of cells found?

110)What are gliomas?

111)What is multiple sclerosis?

112)Why are neurons unable to regenerate?

113)How can axons in the PNS regenerate? Be able to explain the process step by step.

Chapter 15- The brain

114)What is the first line of protection of the brain and spinal cord? What is the 2nd line of defense? What is the 3rd line of defense?

115)List the spaces and meninges superficial to deep.

116)Which space is only found in the vertebral cavity and not the cranial cavity?

117)Anesthetics are usually injected into what space?

118)What meninx is called “tough mother”? What are the two layers of this meninx?

119)Between the periosteal layer and meningeal layer you can find what wide blood vessels?

120)What are the cranial dural septa?

121)What cranial dural septa that separates the two cerebral hemispheres? And what does it attach to?

122)What is the falx cerebelli?

123)What cranial dural septa separates the cerebrum from the cerebellum?

- 124)What is the space between the dura mater and arachnoid called? What does it contain?
- 125)What meninx is deep to the Dura mater? And what does it do?
- 126)What are arachnoid villi? And what do they transport from the arachnoid space to dural venous sinuses?
- 127)What is the space deep to arachnoid? What are two things special about this place?
- 128) What is the deepest meninx? And what is it tightly bound to?
- 129)What is the 3rd line of protection for the brain and where is it made and by what specific cell?
- 130)What are brain cavities called?
- 131)What is the hollow cavity in the spinal cord called?
- 132)How do Ependymal cells make CSF?
- 133)Be able to list the flow of CSF from start to finish.
- 134)What is hydrocephalus?
- 135)Which two arteries supply most of the blood to the brain
- 136)The BBB stands for what? What substances pass easily and which do not?
- 137)What does it mean that the BBB protects the brain from ECF fluctuations?
- 138)What is a hill of the brain?
- 139)What is a sulci?
- 140)What are fissures?
- 141)Where are the lateral ventricles located?

- 142)What is the cerebral cortex (gray matter)?
- 143)Where does the frontal lobe end posteriorly? Where does it end inferiorly?
- 144)What is the frontal lobe function? What are the 3 areas to be concerned of?
- 145)What is the function of the Prefrontal Cortex?
- 146)What is the function of the Primary motor cortex? Where is it located?
- 147)What is Broca's area? What is its primary function?
- 148)What is Broca's aphasia?
- 149)Where is the parietal lobe? What is its primary function? Where do you find the somatosensory cortex?
- 150)Where do you find occipital lobe and what is its function?
- 151)Where would you find a temporal lobe and what is the superior border?
- 152)What is the temporal lobes function? What is Wernicke's area?
- 153)What is Wernicke's aphasia?
- 154)Where would you find the Insula and what is its function?
- 155)What part of the brain contains the prefrontal cortex, primary motor cortex on the precentral gyrus, and Broca's motor speech area?
- 156)What part of the brain is responsible for word retrieval and language and word processing?
- 157)Where can you find the Wernicke's speech comprehension area?
- 158)Where do you find the somatosensory cortex?
- 159)What are the four main parts of the brain?
- 160)What chunk of dura mater attaches to the crista galli?

- 161) What are the differences between the left cerebral hemisphere and the right cerebral hemisphere? Explain some of the specificities of each and how they might overlap. Also how is overlapping beneficial
- 162) What is the area deep to the gray matter called?
- 163) What are the 3 different types of tracts in the brain?
- 164) What is the big commissural tract in the middle of the brain
- 165) What are the deep internal paired structures of gray nuclei called? What specifically do the caudate nucleus and amygdala do?
- 166) What part of the brain controls homeostasis, sleep/wake cycles, and is a relay router/station of sensory input to the cerebral cortex?
- 167) What structure sandwiches the third ventricle? What does it do specifically? What attaches both halves?
- 168) What structure of the brain has the mesencephalic aqueduct/cerebral aqueduct running through it?
- 169) What does the hypothalamus do? What gland attaches to it and how is it attached?
- 170) What is specific about the epithalamus?
- 171) What is the name of the part of the brain more specifically in charge of visual and auditory reflex center
- 172) What types of tracts are in the pons? What do they do?
- 173) What does the gray matter do in the pons?
- 174) What does the medulla oblongata do? And what type of tracts does it contain?

175)What does the cerebellum do?

176)What are the folds on the cerebellum called? And the arrangement of the white matter called?

177)What is the gray matter attaching the two halves of the cerebellum called?

178)What parts of the brain are contained on the brain stem?

179)What is the pons' gray matter responsible for?

180)What chunk of dura mater divides the cerebellum and cerebrum?

181)What is the chunk of dura mater is found attached to the vermis of the cerebellum?

182)What is the structure called that is on the medulla oblongata that is responsible for the reason that our right brain controls left side of body functions for certain things?

Spinal Cord and Spinal Nerves, Blood, Heart, Vessels, Ear and Eye

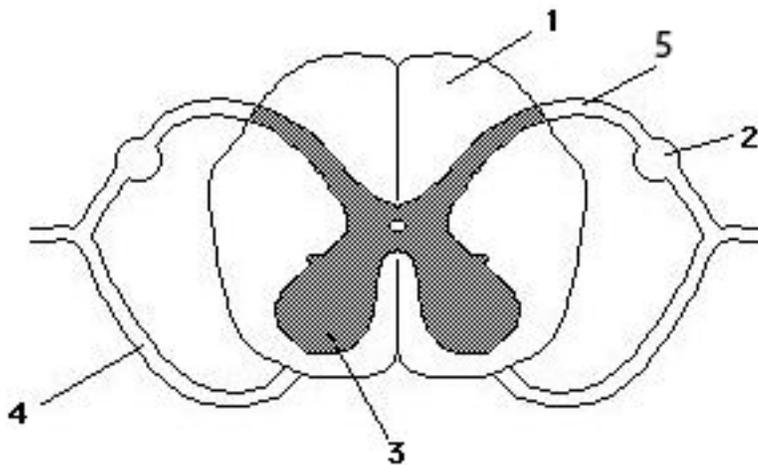
Chapter 16-18: Spinal Cord and Spinal Nerves

- 1) Where does the spinal cord begin?
- 2) What space in the spine is commonly used for injections?
- 3) What do you call the part of the spinal cord that is enlarged in the cervical region?

What about the part of the spinal cord that is enlarged in the lumbar region?

- 4) What is the area where the spinal cord proper ends called?
- 5) What is the collection of lumbar and sacral spinal nerves that extend beyond the end of the spinal cord proper?
- 6) What is the connective tissue covered with pia mater that attaches the spinal cord to the coccyx?

Be able to label a cross section of the spinal cord.



- 7) What are the denticulate ligaments?
- 8) Where do you find the cell body of the sensory neuron located in the spinal cord?
- 9) Where do you find the cell body of motor neurons in the spinal cord?
- 10) Spinal nerves exit the vertebral canal through what holes?
- 11) Name one nerve of the cervical plexus.
- 12) Where would one have to injure the spinal cord to lose innervation to the diaphragm?
- 13) Why would loss of diaphragm innervation be so detrimental?
- 14) What are the nerves of the brachial plexus?
- 15) Do the nerves of the thoracic region form a plexus? And what do they innervate?
- 16) What are the nerves of the Lumbar plexus? What muscles do they innervate?
- 17) What are the nerves of the Sacral plexus? What muscles do they innervate?
- 18) What nerve innervates the triceps brachii, abductor pollicis longus, and brachioradialis muscles?
- 19) Name three muscles that would be affected if you suffer damage to the femoral nerve.
- 20) What is the fatty coating surrounding axons that serves as protection and insulation? Name one common pathological condition that is connected to or caused by damage to this coating.
- 21) What is the conus medullaris?
- 22) What bony structures house the spinal cord?

- 23) If damage is done to the spinal cord at the lumbar level, would this have a greater effect on overall body function than if the insult occurred at the cervical region?
- 24) Which nerves are generally capable of regeneration, central or peripheral?
- 25) Suppose that an athlete slightly hyperextends his elbow while performing an Olympic lift in competition and strains his ulnar nerve. What muscles might be affected?

Chapter 21: The Blood

- 26) What are the three main types of blood cells?
- 27) How many types of leukocytes are there? What are their names?
- 28) Which type of blood cell is commonly called a “red blood cell?”
- 29) Rank the types of leukocytes in order from most to least common.
- 30) What is blood doping and why might athletes consider this a beneficial practice? What negative side effects might come with this practice?
- 31) Based on your understanding of blood cells, which one might you expect to be affected most by leukemia?

Chapter 22-23: The heart and Vessels

- 32) What are the chambers of the heart?
- 33) What is the systemic circuit?
- 34) What is the pulmonary circuit?
- 35) Why must blood run through the pulmonary circuit before being distributed throughout the body via the systemic circuit?
- 36) What is the medical term used to describe hardening of the arteries?

- 37) What vessels take blood away from the heart? What specific structure do they deliver the blood to? Hint: these structures are found all throughout the body.
- 38) What are smaller arteries called?
- 39) What vessels are responsible for gas exchange?
- 40) What are smaller veins called?
- 41) What cavity can you find the heart in?
- 42) What is the pointed inferior end of the heart called? And the superior end?
- 43) What are the tissue layers of the heart? (superficial to deep)
- 44) What is the outer layer composed of?
- 45) What is pericarditis?
- 46) What is the dividing wall separating the atria?
- 47) Which node initiates the heartbeat? It is also called the pacemaker.
- 48) What are the 3 categories of arteries?
- 49) What are the 3 layers of vessels?
- 50) What is an anastomosis?
- 51) Which chamber of the heart does the pulmonary circuit begin in and which chamber does it end in?
- 52) Draw the hepatic portal system and explain how it works.
- 53) Through what opening does blood flow between the atria?
- 54) What is the ductus arteriosus?
- 55) What are all the names of the valve between the right atrium and right ventricle?
What about the names of the valve between the left atrium and left ventricle?

- 56) Which vessels are found in the anterior interventricular sulcus?
- 57) Is the blood coming to the heart from the lungs (in pulmonary circulation) oxygenated or deoxygenated?
- 58) Name the vessels that carry blood from the lungs to the heart.
- 59) What is the first organ to receive blood once it enters the aorta?
- 60) What muscle serves as the border between the descending thoracic aorta and the descending abdominal aorta?
- 61) Which chamber of the heart does the coronary sinus empty into?
- 62) Name the arteries that branch off of the right coronary artery.
- 63) Name the arteries that branch off of the left coronary artery.
- 64) Which side of the heart has a thicker layer of myocardium? Why is this important?
- 65) What is the pathological condition in which the heart muscle ceases beating?
- 66) Is the heart controlled by the somatic or autonomic nervous system?

Chapter 16: The eye and the ear

- 67) How many muscles attach to the exterior surface of the eye?
- 68) Which of these muscles are innervated by the oculomotor nerve?
- 69) What other nerves are involved in eye function?
- 70) Name the gland that produces tears.
- 71) Name the corner of the eye, where tears gather before leaving the orbital region.
- 72) What are the two parts of the fibrous tunic of the eye?
- 73) Name the layers of the eye wall from superficial to deep.

- 74) What is the colored ring that surrounds the pupil?
- 75) What is the structure that separates the anterior cavity from the posterior cavity of the eye?
- 76) What is the anatomic name of the white part of the eye?
- 77) If someone has scratched their cornea, which tunic was directly affected?
- 78) What part of the eye is involved when someone has conjunctivitis?
- 79) What are the two primary sensory functions of the ear?
- 80) Give the anatomic name of the “eardrum.”
- 81) What bone houses the middle and inner ear structures?
- 82) Name the three auditory ossicles.
- 83) Which window covers the scala tympani – round or oval?
- 84) What parts of the inner ear are involved in maintaining one’s balance?
- 85) Which cranial nerve innervates the ear?
- 86) Why might cotton swabs, generally used for cleaning out ear wax, come with a warning not to insert them into one’s ear?
- 87) The stapes articulates with what structure, transmitting vibratory sound waves into the scala vestibuli?
- 88) Name the two saclike structures that make up the vestibule of the inner ear.

All chapters from this section: Mixed review

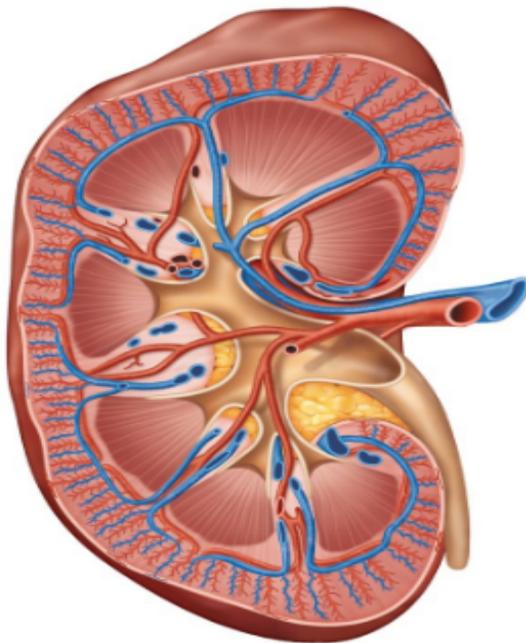
- 89) What are the two names of the circular anastomosis of arteries supplying the brain in the sella turcica region?
- 90) Is there a common jugular vein, a common carotid artery, both, or neither?

- 91) Name the three vessels that drain the chest wall into the superior vena cava.
- 92) Why does blood pass through the hepatic portal system on its return to the heart from the spleen and large and small intestines?
- 93) How are muscles involved in venous return of blood to the heart?
- 94) If the body chronically receives hormonal signals to retain excessive amounts of water, thus increasing blood volume and pressure on arterial walls, what pathological condition will likely develop as a result?
- 95) Why do arteries have thicker, more elastic walls than veins?
- 96) What is the name of a place where multiple vessels have merged to supply blood to the same body region?

Lymphatic System, Urinary System and Reproductive System

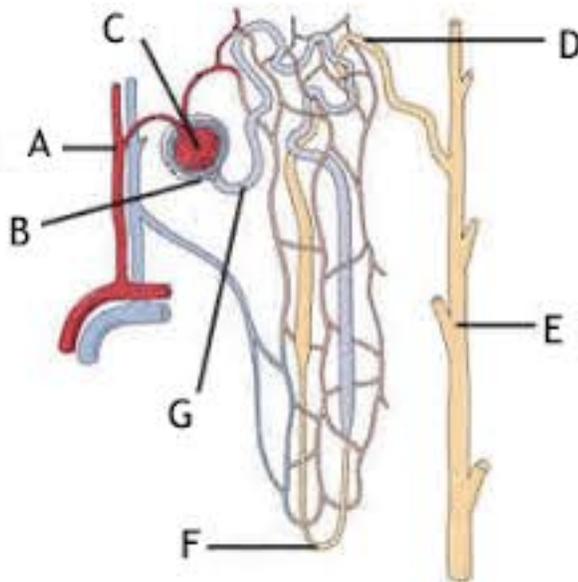
Chapter 27: The Urinary System

- 1) What are the 3 main functions of the urinary system?
- 2) What are the organs included in the Urinary System?
- 3) Is the kidney located within the peritoneal cavity or the retroperitoneal cavity?
- 4) What gland sits on the superior surface of the kidney?
- 5) Where do the vessels, nerves and ureter enter in on the kidneys?
- 6) What are the protective tissue layers of the kidney (deep to superficial)?
- 7) What tissue is the fibrous capsule composed of?
- 8) What protective layer of the kidney anchors it to the body wall?
- 9) Be able to label the blank kidney structure.



- 10) Where would you find collecting ducts?
- 11) What is the outer layer of the kidney called? The inner layer?
- 12) What are the tips of the renal pyramids called?
- 13) List the flow of blood in the starting in the kidney and ending in the right atrium.
- 14) List the flow of filtrate.
- 15) What is the network of nerves in the kidney called?
- 16) What is the functional unit of the kidney called?
- 17) What are the 3 things that happen at a nephron?
- 18) How many nephrons in a kidney?
- 19) What happens with filtration? Where is the first place it happens? How is it driven?
- 20) What happens with Resorption?
- 21) What happens with Secretion?
- 22) What is the blind-end sac that surrounds the glomerulus
- 23) What is the visceral layer of the Bowmans capsule composed of?
- 24) What is the glomerulus and Bowmans capsule collectively called?
- 25) What types of capillaries are within the glomerulus?
- 26) What are the slit-like pores on the podocytes called?
- 27) What is the capsular space?

28) Be able to label the nephron structure.



29) Where does reabsorption of water primarily occur?

30) Trace the flow of a molecule of urea from its production till it enters the ureter.

31) What is the difference between the afferent arteriole and efferent arteriole?

32) What is the region of the nephron where the distant convoluted tube runs near the afferent arteriole?

33) What are the juxtaglomerular cells responsible for? Where are they located?

What hormone do they secrete?

34) What cells are responsible for monitoring solute concentration? Where are they located?

35) How long in average are the ureters?

36) Where do the ureters enter at the urinary bladder?

37) Where is urine stored and expelled?

- 38) What is the triangle on the posterior wall formed by the 3 openings in the urinary bladder?
- 39) What are the tissue layers of the urinary bladder? Where does the blood supply come from? And how is blood drained?
- 40) Between the bladder and beginning of urethra is located what?
- 41) Is the internal urethral sphincter controlled by smooth or skeletal muscle? Is it voluntary or involuntary?
- 42) Urethra drains _____ from the bladder out of the body.
- 43) What are the tissue layers of the urethra?
- 44) Where will you find the external urethral sphincter? Is it voluntary or involuntary?
- 45) How long is the female urethra? How long is the male?
- 46) What is the opening of the urethra to the outside of the body called in both males and females?
- 47) Female urethra only carries urine but the male also carries _____.
- 48) What are the three areas of the male urethra called?
- 49) What are the muscles of the urinary bladder called?
- 50) Parasympathetic neurons do what in response to urination?
- 51) How does one avoid urination?

Chapter 28: The Reproductive System

- 52) Sex is _____ while gender is social identity.
- 53) List the 5 determinants of biological sex
- 54) Ovaries are homologous to what structure of the male?

- 55) Glans Clitoridis is homologous to what structure on the male?
- 56) Each fetus starts out with duct work/tubes of each gender, which ones are specific to females? Which one is specific to males? What happens to one of the ducts or tubes if one of those ducts starts to become more predominant?
- 57) Scrotum is homologous to what female structure?
- 58) At what month during development do the testes descend through the inguinal canal?
- 59) Everyone starts out with a blind _____.
- 60) What Hormone gives rise to mullerian duct degeneration?
- 61) What gene starts the development of the testes?
- 62) What is the default anatomical sex in humans is _____.
- 63) The SRY gene is on what chromosome?
- 64) Labia fuse to form the _____.
- 65) Labia minora is homologous to what structure on males?
- 66) XX fetal gonads secrete _____ while XY gonads secrete _____.
- 67) Anatomic “maleness” is due to the presence of _____.
- 68) Nipple development starts before or after sex differentiation?
- 69) Anatomic “femaleness” is not due to the presence of _____ but lack of testosterone.
- 70) What is the name of the syndrome where the testosterone cell receptors are defective therefore a XY fetus will become an anatomic female.?

- 71) What hormone causes gonads to begin production of sex hormones?
- 72) What do you call a person where they are somewhere in between male and female?
- 73) What is the difference between cisgender and transgender?
- 74) What is sexual orientation?
- 75) What female structure bosses the uterus around?
- 76) What do you call the female external genitalia?
- 77) What female structure is homologous to the male bulbourethral glands? What is this structures function?
- 78) The paraurethral glands are homologous to what in males?
- 79) What is the erectile tissue in females?
- 80) What are the 3 jobs of the female reproductive system?
- 81) How long is the menstrual cycle? What happens to the wall of the uterus?
- 82) What houses the opening to the urethra and vagina?
- 83) What is homologous to the corpus spongiosum? What is the primary function of this structure?
- 84) What structure extends back in the clitoris as erectile tissue and become the crura?
- 85) The ovaries produce what 3 things?
- 86) Are the ovaries directly connected with the fallopian tubes?
- 87) Ovarian arteries branch from what artery?
- 88) What are the tissue layers of the ovaries ?
- 89) What layer is thinner in the ovaries than in the testes?

- 90) What is the structure that houses the oocyte to help it develop?
- 91) Females are born with a certain number of _____ in the ovaries and can not make more.
- 92) The germinal epithelium is composed of what tissue?
- 93) What is the fourth leading cause of cancer-death in women?
- 94) What ligament hooks the ovary to the uterus?
- 95) What ligament goes behind the ovaries and supports the uterus and ovary?
- 96) What ligament suspends ovaries from the back body wall, which also houses the ovaries arteries and veins?
- 97) What tissue makes of the inner mucosa layer of the uterine tubes?
- 98) What part of the uterine tube stiffens for the courting of the oocyte?
- 99) Where does fertilization usually happen?
- 100) _____ start to wave toward the uterine end of the tubes to court the oocyte inside the uterine tubes.
- 101) This condition occurs when the oocyte was fertilized outside the uterine tubes is called what? What happens if a pregnancy happens in the tubes?
- 102) What is Pelvic Inflammatory Disease?
- 103) What ligament extends from the fundus of the uterus toward the pelvic wall and attach at labia majora?
- 104) What are the 3 tissue layers of the uterus?
- 105) How many layers of smooth muscle are in the uterus?
- 106) What are the two layers of the Endometrium?

- 107) Blood supply to the uterus come from the _____ arteries, which branch from the internal iliac arteries.
- 108) What layer of the endometrium sheds? Which layer makes the new layer?
- 109) When you menstruate you are shedding _____ tissue.
- 110) What is the part of the vagina that surrounds the cervix?
- 111) What are the folds within the vagina called?
- 112) What is the condition called where you grow endometrium that does not stay within the uterus? It can grow out of the uterus (into the oviducts and can go in peritoneal cavity)?
- 113) What are the 3 functions of the Vagina?
- 114) What is the inner most layer of the vagina called? What tissue makes up this layer?
- 115) What are the other two layers of the vagina starting at the middle layer and going superficial?
- 116) What do the glands in the mucosa layer secrete to help make the vagina more acidic?
- 117) What is the vascular membrane that covers the vaginal orifice?
- 118) What is the homologous structure in females to the scrotum in males?
- 119) What is the scrotum? What do they regulate
- 120) What is the dividing wall separating the two testes?
- 121) What is the deeper skeletal muscle that surrounds the testes? What is the more superficial smooth muscle that wrinkles the skin of the scrotum?

- 122)What is the muscle of the testes that is primarily for temperature regulation?
- 123)What structure produces sperm and testosterone?
- 124)What are the layers of the testes from superficial to deep?
- 125)What two places can you find tunica albuginea?
- 126)Where do sperm mature?
- 127)What cells produce testosterone in the testes?
- 128)Testicular arteries branch off of what artery?
- 129)There is a lot of visceral _____ innervation in the testes.
- 130)List the trace of sperm from start to when it exits the penis.
- 131)What are some of the structures that can be found within the spermatic cord?
- 132)Crura of the penis are an extension of what structure?
- 133)What are the two erectile bodies in the shaft of the penis?
- 134)Which of the accessory glands of the male reproductive system makes about 60% of the fluid in semen?
- 135)Which gland makes about 1/3 of the fluid of semen?
- 136)What does the bulbourethral gland do?
- 137)What are the 4 stages of female and male sexual response?
- 138)What stage of the sexual response is responsible for intense pleasurable feelings related to release of endorphins, dopamine, oxytocin and vasopressin in both sexes?
- 139)What stage is responsible for increased blood flow and decreased venous drainage to all erectile bodies of the penis?

- 140)What does the arousal and plateau stage do to the woman?
- 141)What do men and women have in common during the stage of resolution?
- 142)What happens to the uterus during arousal stage? And the cervix?
- 143)What happens to the bulbs of the vestibule and labia majora during the arousal stage? What is the purpose of this?
- 144)What lubricates the opening of the vagina? During what stage does this happen?
- 145)Explain how erection happens in the penis.
- 146) Blood flow to the penis increases _____ more than usual during the arousal stage.
- 147)What glands secrete fluid to cleanse urethra and lubricate penis?
- 148)What does sympathetic innervation do to an erection?
- 149)What stage is responsible for skeletal muscle contraction in the perineum?
- 150)What stage of sexual response does not exist in women? Why?
- 151)Ejaculation is controlled by sympathetic or parasympathetic innervation?
- 152)What hormone is more released into the brain of a male during climax?
- 153)How long is the refractory period in males?
- 154)What stage is characterized but profound relaxation?
- 155)What happens to the uterus during resolution stage?

