Name ______________________

Human Anatomy Worksheet -- Exam 3
Due: Day of Exam 3 -- Value: 20 points

Figures to practice sketching and/or labeling: 23.2b, 23.4, 23.7, 23.9, 23.11, 24.2, 24.7, 24.11, 24.16a, 24.19, 25.3, 25.6, 25.11, 26.1, 26.10, 26.12 + any lecture sketches

1. The wall of the alveolus is composed primarily of __________________________ cells, but ________________________ cells are important because they secrete __________________, which prevents alveolar collapse.

2. Which muscle type (skeletal or smooth) is found in the following features?
   - lower esophageal sphincter __________
   - inferior pharyngeal constrictor __________
   - internal urethral sphincter __________
   - external urethral sphincter __________
   - internal anal sphincter __________
   - external anal sphincter __________
   - detrusor __________
   - trachealis __________
   - teniae coli __________

3. Circle the organs that are lined with ciliated epithelium.
   - ductus deferens
   - internal nasal cavity
   - laryngopharynx
   - lobar bronchus
   - urethra
   - esophagus
   - trachea
   - uterine tubes
   - ureter
   - nasopharynx
   - oropharynx

4. Circle the organs which exhibit peristalsis.
   - ureter
   - descending colon
   - cecum
   - esophagus
   - stomach
   - uterine tubes
   - trachea
   - jejunum
   - ductus deferens

5. a. When the diaphragm relaxes, the volume of the thorax (decreases/increases), causing thoracic pressure to (decrease/increase).
   b. When the internal intercostals contract, the anterior-posterior dimensions of the thorax (decrease/increase), causing a(n) (decrease/increase) in thoracic pressure.
   c. As a result of a. & b., air moves (out of/into) the lungs.

6. What unique feature(s) do/does the muscularis layers of the GI tract exhibit in the esophagus --
   - stomach --
   - large intestine --

7. Cortical nephrons have a (shorter/longer) nephron loop than do juxtamedullary nephrons. Cortical nephrons are also (more/less) abundant and are located (deeper/more superficially) than juxtamedullary nephrons.

8. a. Circle the following organs that are retroperitoneal.
   - pancreas
   - duodenum
   - uterus
   - uterine tubes
   - ascending colon
   - transverse colon
   - descending colon
   - sigmoid colon
   - ureters
   - bladder
   - kidney

   b. What term describes the location of the organs above that you did not circle? ______________________

9. List four features of the small intestine that increase the surface area available for digestion and absorption.
10. Which branch of the bronchial tree supplies a lobe? ___________________
   leads into a bronchopulmonary segment? __________________
   supplies an entire lung? ___________________
   supplies a respiratory bronchiole? ________________

11. Give another name for:
   Type II alveolar cells- turbinates-
   Type I alveolar cells- inferior pharyngeal constrictor-
   vocal cords- lower esophageal sphincter-
   false vocal cords- posterior nasal aperture-
   alveolar macrophages- pudendum -
   pyloric sphincter -

12. a. Which tissue does a bronchus have but a bronchiole lacks? __________________
   b. Which tissue does a terminal bronchiole have more of than a respiratory bronchiole? ________________
   c. Which divisions of the pharynx have stratified squamous epithelium? pseudostratified ciliated columnar epithelium?

Do the following sequence questions on a SEPARATE SHEET of paper. (You needn’t use a separate sheet for each.) You may sketch, use arrows in a flow diagram, list, or write each out descriptively.

13. Trace the path of a carbon dioxide molecule from plasma in a pulmonary capillary to the lumen of an alveolus.

14. Starting at the laryngopharynx, trace the path of a bite of food through the GI tract to the anus. Name all organs and include all sphincters and valves along the way (but don’t include accessory organs or their ducts).

15. Trace the path of air from an external naris to an alveolus.

16. Trace the path of fluid which will become urine from a glomerular capillary to a papillary duct. Indicate which components are considered part of the nephron, which are part of the renal corpuscle, and which are part of the renal tubule.

17. Trace the path of a drop of urine from the tip of a renal pyramid to the external urethral orifice in a male, including divisions of the urethra and any sphincters passed along the way.

18. Define the following word roots. (FYI – List a word that uses each of the previous roots to help you remember its meaning.)

   lingu - calyx gingiva-
   ren- cortex crico-
   metri- infundibulum labia
   medulla hyster- entero-
   neph- pylor- gastro-
   thyro- pharyng- hepat-
   falci- verm- sigma-
Anatomy Educational Objectives – Exam 3

IX. Respiratory System

1. List general functions of the respiratory system.
2. Describe the functional and anatomical divisions of the respiratory system.
3. Describe the gross anatomy and histology of the internal and external nose.
4. Describe the boundaries and characteristic lining epithelium of each division of the pharynx.
5. Describe the gross anatomy of the larynx and list its three major cartilages.
6. Describe the mechanisms of the larynx & pharynx that normally prevent entry of food into the respiratory tract.
7. Describe the structure of the trachea, explaining why its cartilaginous rings are C-shaped rather than circular.
8. List the branches of the bronchial tree and which portion of the lung each supplies.
9. Describe the histological changes observed as you travel from the trachea to an alveolus.
10. Describe the effect of smoking on the respiratory tract.
11. Describe the function and arrangement of the pleural sac and membranes, and sequence them from superficial to deep.
12. Describe the gross anatomy of the lungs and be able to identify the assigned structures on a diagram and/or model.
13. List the anatomical subdivisions of lung structure from largest to smallest (lobe to alveolus).
14. Trace the path of inspired air from the external naris to an alveolus.
15. Describe the blood supply of a lung.
16. Describe the histology of an alveolus.
17. Describe the structure and function of the respiratory membrane, sequencing the path of an oxygen or carbon dioxide molecule.
18. Explain the pressure/volume changes required to breathe.
19. Describe the relative contributions of the diaphragm and external intercostal muscles to normal inspiration.
20. Describe the difference between passive and forceful expiration.

X. Digestive System

1. Explain the description of the digestive system as a tube-within-a-tube.
2. Give general functions for the digestive system.
3. List the four layers of the digestive tube, from innermost to outermost, including the subdivisions and tissue composition of each layer.
4. Name and describe the location of the two layers of nervous tissue found within the gut wall.
5. Differentiate between an adventitia and a serosa.
6. Describe the general arrangement of the peritoneum and list its major folds, including their attachments.
7. Create a list indicating which portions of the digestive tube are retroperitoneal and which are intraperitoneal.
8. Describe the boundaries and contents of the oral cavity.
9. Describe the structure of a tooth, and be able to label these features on a diagram.
10. Compare and contrast the deciduous and permanent dentitions.
11. List the 4 types of teeth (and numbers of each type in adults) and the general function of each type.
12. List the three pairs of major salivary glands and describe their location.
13. Describe the histology and sphincters of the esophagus.
14. List the features and functions of the stomach, and be able to identify these features on a diagram.
15. List the divisions of the small intestine, the length of each division, and four structural features enhancing digestion and absorption of nutrients.
16. Describe the function, structure, and histology of the large intestine, comparing it to the small intestine.
17. List the four regions of the large intestine and the subdivisions of each region.
18. Relate the histology of the internal and external anal sphincters to their role in defecation.
19. Describe the histology and function of the liver.
20. Describe the dual blood supply to the liver.
21. Describe the structure, location and histology of the pancreas.
22. Sketch and label the biliary/pancreatic duct system, including the role of the gall bladder.
23. Trace the path of a bite of ingested food through the GI tract, listing all features and sphincters it would pass along the way.
XI. Urinary System

1. State the general functions of the urinary system.
2. Describe the location and connective tissue coverings of the kidney.
3. Describe the internal features of the kidney and be able to identify assigned features on diagrams.
4. Describe the blood supply to a kidney and a nephron.
5. Sketch a tubular nephron, labeling its components.
6. Compare cortical nephrons to juxtamedullary nephrons.
7. Describe the location and function of the ureters.
8. Describe the location, internal structure, and histology of the bladder.
9. Compare the male urethra to the female and state the clinical significance of the difference.
10. Compare the internal urethral sphincter to the external urethral sphincter.
11. Trace the path of a drop of filtrate formed from the glomerulus to its elimination from the body at the external urethral orifice.

XII. Reproductive Systems

1. Describe the location and contents of the perineum.
2. Define the terms gonad, gamete, and genitalia and state the human organs/cells for each sex.
3. Describe the structure and muscular contents of the scrotum.
4. Describe the location and descent of the testes.
5. Describe the internal structure of a testis and the histology of a lobule.
6. List the functions and components of the male duct system.
7. Describe the location and list the contents of the spermatic cord.
8. Describe the location of the male accessory sex glands.
9. Describe the gross anatomy and internal structure of the penis.
10. Trace the path of a sperm cell from site of production to site of ejaculation.
11. Describe the location and histology of the ovary.
12. Compare a primordial follicle to a mature follicle.
13. Describe the attachment and histology of the uterine tubes.
14. Explain how an ovum released into the abdominopelvic cavity is captured by the infundibulum.
15. Describe the location, gross anatomy, internal structure, and histology of the uterus.
16. Compare the location of the vagina to the urethra, rectum, and anal canal.
17. Sketch and label features of the pudendum.
18. Differentiate the exocrine and endocrine portions of each gonad.

Examples of some integrative objectives

1. Given a list of organs, identify which ones are lined with ciliated epithelium, simple epithelium, stratified squamous epithelium, contain smooth muscle in their walls, or contain skeletal muscle in their walls.
2. List the retroperitoneal organs.
4. Which organs in this unit exhibit peristalsis?
5. Give examples of the use of the term “vestibule” in 3 different systems in this unit.

➢ Recall and apply all “Deeper Insights” assigned for this unit.