

LAB 9 – LAB EXAM II Review

Assignments:

Due before lab:

Quiz: Complete the Interactive Physiology exercises on urinary and digestive physiology on pages 92-97. The quiz will cover GFR (pgs 92-93) and Digestive-Anatomy Review (pgs 96-97).

Due next lab period:

Lab Exam II

Will cover Labs 5, 7, 8, 9, and Interactive Physiology CD ROM exercises of Respiratory, Digestive and Urinary Systems.

View the Urinary and Digestive Physiology on the Interactive Physiology CD, answer the questions on pages 92 – 97. These will be included on Exam II.

Urinary System – Glomerular Filtration

1. What force drives filtration at the glomerulus? _____

2. Glomerular filtration is a process of _____ driven by the _____ of the blood.

3. Common components of the filtrate are divided into four categories on the CD program, these include:
 - a. _____
 - b. _____
 - c. _____
 - d. _____

4. Blood pressure in the glomerulus is about _____ mmHg.

5. What two pressures oppose filtration and what are their values?
 - a. _____
 - b. _____

6. What is the normal net filtration pressure? _____ mmHg

7. With a glomerular filtration rate of 125 ml/min, how much plasma would be filtered per day?
_____ in 24 hours

8. In an exercising individual the afferent arteriole will dilate or constrict (circle one) to avoid excess fluid loss.
9. Two mechanisms that provide autoregulatory control over renal processes include:
 - a. _____
 - b. _____
10. High osmolarity (or high Na^+ and Cl^-) in the ascending loop of Henle will cause afferent arterioles to dilate or constrict (circle one) by releasing:

11. In periods of extreme stress, the sympathetic nervous system will override autoregulation. An increase in sympathetic flow to the kidney will result in what 2 important effects that will aid maintenance of blood pressure?
 - a. _____
 - b. _____

Urinary System – Early Filtrate Processing

1. What are the two reabsorption pathways through the tubular cell barrier?
 - a. _____
 - b. _____

2. How can we cause water to diffuse from the lumen into the interstitial space?

3. Transport of what ion could cause #2 to happen?

4. Summarize reabsorption in the proximal tubule.

5. What % of the filtrate is reabsorbed in the proximal tubule? _____%

6. The simple squamous cells of the thin descending loop are permeable to _____ but impermeable to _____.

7. The ascending limb of the loop of Henle is permeable to _____ but not permeable to _____.

8. What is the role of the loop of Henle?

9. What is the role of the Vasa Recta?

10. From the quiz section, what does furosemide do?

11. If you increase furosemide, what would happen to:

___ $\text{Na}^+/\text{K}^+/\text{2Cl}^-$ cotransport

___ water reabsorption in descending limb

___ $\text{Na}^+/\text{K}^+/\text{2Cl}^-$ retained in tubule

___ filtrate and volume flow

___ interstitial osmolarity

___ urine output

___ loss of body water and electrolytes

Digestive System: Anatomy Review

1. List the 4 layers (from innermost to outermost) of the gastrointestinal tract.

2. Hormones of the GI system are produced and secreted by which of the following cells?

- a. columnar epithelial
- b. goblet
- c. enteroendocrine

3. Name the three muscle layers found in the stomach. Which one is unique to the stomach?

- a. _____
- b. _____
- c. _____

4. The _____ plexus and the _____ plexus make up the enteric nervous system.

5. The _____ conveys a bolus of food to the stomach.

4. Partially digested food in the stomach is called _____. After the stomach, it moves into the _____.

5. The major site of digestion and absorption in the GI tract is the _____.

6. The circular folds found in the small intestine that increase absorption are called _____ . The finger-like projections called _____ also increase the surface area to increase absorption.
7. List the 4 regions of the stomach: _____

8. Name the three parts of the small intestine and state which one is only 8-11 inches long.

9. Which organ of the GI system absorbs water and electrolytes and produces some vitamins?

10. Which sphincter:
a. prevents reflux of gastric contents into the esophagus? _____
b. controls the rate of gastric emptying? _____
c. permits the flow of chime into the large intestine?
11. Bile: Where is bile produced? _____
Where is bile concentrated and stored? _____
It is necessary for the digestion and absorption of: _____
12. The pancreas produces _____ to digest food stuff and _____ to neutralize acidic chime from the stomach.