Unit 2 Study Guide: The Digestive and Excretory (Urinary) Systems

This study guide covers MOST of the material that will be on the test. Remember, I test on the lecture notes (including pictures), labs, study guide, and assignments. Also, all of the short answer test questions are on this study guide in the section labeled “Short Answer Questions.” This study guide is not an assignment.

1. Which type of muscle tissue surrounds most of the gastrointestinal tract?
2. What organs make up the gastrointestinal tract? (From mouth to anus.) What organs make up the accessory organs?
3. Distinguish between mechanical digestion and chemical digestion.
4. What enzyme is secreted in the mouth?
5. What is the adult dental formula? What are teeth composed of?
6. Be able to describe the layers of the gastrointestinal tract.
7. What is the name of the major movement that propels food through the digestive tract?
8. What is a bolus? What tube moves the bolus from the pharynx to the stomach?
9. Explain what enzymes and acids are secreted in the stomach, where they are secreted from, and list their function.
10. Know what substances can be absorbed in the stomach. Which macromolecule is primary digested? What is chyme?
11. What is the main cause of a stomach and duodenal ulcer?
12. What is the function of the liver, pancreas, and gallbladder in the digestive system? What is bile and what does it do?
13. Know the anatomy and physiology of the small and large intestine. What are the microvilli? What is segmentation?
14. What macromolecules are digested in the small intestine? Which part of the SI does most digestion take place?
15. Know the function of enzymes mentioned in the Digestive System Lab and where they are located in the GI track.
16. What are some of the functions of the kidneys? Be able to label and answer questions about the pictures of the kidney and nephron.
17. Know what substances are filtered out of the blood and which ones are not.
18. Know what substances are reabsorbed into the blood and by which type of transport (active or passive).
19. What does it usually mean if glucose is found in the urine? Large amounts of protein? Zombies?
20. How might you be able to determine a person’s diet by the pH of their urine? How can you determine if they are starving?
22. What are the names of the blood vessels that supply the kidneys with blood?
23. Is antidiuretic hormone (ADH) regulated by negative feedback or positive feedback? What is the function of ADH?
24. Normally when the body becomes dehydrated it produces urine with more solutes and less water. Under the influence of alcohol a person will produce dilute urine even if they are becoming dehydrated. Explain why this is so in detail.
25. Know what occurs during filtration, reabsorption, and secretion, and what molecules are filtered and reabsorbed.
26. What is the function of the ureters, bladder, and urethra? What type of epithelial tissue lines the bladder?
27. What is the micturition reflex?
28. Know the symptoms, cause and treatments for kidney stones.
29. Why are women more likely to have a bladder infection? (Give TWO reasons why.)

Short Answer Questions

1. Foods rich in unsaturated fats, fiber and protein usually contain more calories than foods primarily contained of refined carbohydrates (white bread, sugar, etc.). It seems than a diet rich in refined carbohydrates would reduce a person’s daily caloric intake, but it usually does the opposite. Explain why people are more likely to lose weight eating a diet rich in unsaturated fats and fiber.

2. Protein digestion in the stomach releases large amounts of urea. Urea is a nitrogenous breakdown product of amino acids. Helicobacter pylori takes advantage of this sea of urea and uses it for protection against the acidic environment of the stomach. The outer membrane of H. pylori is studded with enzymes called ureases. Urease converts urea into carbon dioxide and ammonia, which is a base. How does the conversion of urea into ammonia protect H. pylori from the hostile environment of the stomach?

3. Why does drinking water before, with, and after a meal help digestion? (“The water fairy” is not the correct answer.)

4. Why can the use of antibiotics lead to difficulty in blood clotting and diarrhea?
5. What would happen to the body if filtration continued at a normal rate but reabsorption dropped to one-half of normal?

6. Explain how the regulation of urine concentration and volume is a negative feedback system.

7. Which procedure would have the most detrimental effect on digestion – removal of the stomach, pancreas, or gallbladder? Explain your choice.

8. Normally when the body becomes dehydrated it produces urine with more solutes and less water. Under the influence of alcohol a person will produce dilute urine even if they are becoming dehydrated. Explain why this is so in detail.

9. The metabolites of marijuana are small, nonpolar molecules. Marijuana metabolites usually can be detected in a person’s blood and urine for weeks after they have last used the drug. Explain why it takes the body so long to excrete all the metabolites of marijuana.

10. A physician prescribes an oral antibiotic for a patient with an infection of the urinary bladder. How would you describe for the patient the route the drug follows to reach the bladder?

11. If an infant is borne with narrowed renal arteries, what effect would this condition have on the volume of urine produced? Explain your answer.