

STUDY GUIDE – Exam 3 (Chapter 14) Nutrition and Digestion

- 1. A.** Name and explain two important reasons why you ingest food. **B.** Name the three macromolecules your body needs for proper nutrition. **C.** Why are carbohydrates important for nutrition? **D.** Why should you eat whole wheat bread over white?
- 2. A.** Why are lipids important in your diet? **B.** Why are proteins important in our diet? **C.** What are essential amino acids? **F.** What is the difference between complete and incomplete proteins. Give some examples of each.
- 3. A.** What are the two main categories of micronutrients? **B.** Why are they called micronutrients? **C.** Why are vitamins important for proper nutrition? **D.** Name the 4 fat-soluble vitamins along with their appropriate food sources and why they are needed. **E.** Name (be able to recognize) the 9 water-soluble vitamins. Note any information stated in class as important for this category.
- 4. A.** Why are minerals important for proper nutrition? **B.** Name (be able to recognize) major mineral groups learned in class. Note any information stated in class as important for this category.
- 5. A.** What process/chemical reaction occurs within our cells that transforms glucose into energy? **B.** What is the usable form of energy called that results from this process? **C.** Review (show) the formula for this process.
- 6. A.** Name two ways in which your body expends energy. **B.** What is BMR? Explain.
- 7. A.** Follow the path of food in the alimentary canal in humans (write out in order) and be able to identify them on a diagram. Also, be able to identify the accessory organs that aid in digestion.
- 8. A.** Mouth/Oral Cavity - name and explain the function(s) of each of the following structures: teeth, tongue, salivary glands. **B.** Saliva contains the enzyme salivary amylase. What does this enzyme do? **C.** What is another purpose of saliva? **D.** What type(s) of digestion occurs in the mouth (mechanical/chemical)? Explain.
- 9. A.** Pharynx - Where is this located? **B.** What does the epiglottis do when you swallow? **C.** Esophagus - describe its structure and function. **E.** What is peristalsis?
- 10. A.** Stomach - what are two different functions of the stomach. **B.** What substances are produced by gastric glands and what are their functions? **D.** What is the approximate pH of gastric juice? **E.** Why doesn't your stomach digest itself? **F.** What is heartburn?
- 11. A.** . Small Intestine - give approximate length and diameter. **B.** What is the primary function of the small intestine? **C.** What are the three parts of the small intestine and explain what happens in each.
- 12. A.** . Chemical digestion: For each structure listed, explain what part it plays in chemical digestion of food in the small intestine (where it is and what it does/makes): liver, pancreas, gall bladder.
- 13. A.** Absorption - how do villi and microvilli aid with absorption? **B.** Draw and describe the structure of a villus. **C.** Show/describe where fat products are absorbed and where amino acids/sugars are absorbed.
- 14. A.** Large Intestine (Colon): give approximate length and diameter **B.** What is the main function of the large intestine? **C.** What events lead to constipation? diarrhea?

Urinary System

- 1. A.** Describe the broader concept of “excretion” in your own words. **B.** Why is this process necessary for the body? **C.** Name some parts of the body that can be used for excretion. **D.** Name some metabolic wastes that can be excreted from the body.
- 2. A.** Name the major structures of the urinary system as learned in class and describe their functions. **B.** Draw a simplified version of the urinary system (and blood supply) and label the parts.
- 3. A.** Name the parts of the kidney and describe the purpose/function of each.
- 4. A.** What is a nephron and what does it do overall? **B.** Name the parts of the nephron as described in class. **C.** Name and describe the three main steps of blood filtration where along the nephron each takes place. **D.** Draw a simplified nephron (and blood supply) and label the parts.
- 5.** Describe the following diseases of the urinary system/treatment: **A.** Urinary Tract Infections **B.** Kidney stones
- 6. A.** Describe the parasite *Schistosoma haematobium*. **B.** How is this infection acquired? **C.** What are some of the effects of infection with this organism? **D.** What is Pharoah’s Curse?

Musculoskeletal System

- 1. A.** What bones are part of the axial skeletal **B.** appendicular skeleton?
- 2. A.** Describe and give examples of the three types of joints: ball/socket, hinge, pivot. **B.** What are osteons, central canals and lacunae?
- 3. A.** Describe how tendons are involved in muscle attachment to bone. **B.** What is meant by agonistic pairs?
- 4. A.** How are actin and myosin involved in muscle contraction? **B.** Draw and label a diagram of a sarcomere. Be sure to label the thick and thin filaments and the Z-lines.
- 5. A.** How are ATP and Creatine Phosphate each involved in muscle physiology? **B.** What happens when muscle cells run out of oxygen?
- 6. A.** Describe the process of osteoporosis. **B.** What nutrients and macromolecules are involved in this pathology?
- 7. A.** Describe *Trichinella spiralis*- **B.** How is this infection acquired? **C.** What happens to the worm in the muscles?

Integumentary System

- 1. A.** List the primary functions of the integumentary system. **B.** What are the main parts of the integumentary system?
- 2. A.** List the three layers of the skin. **B.** What structures are found in each of the three layers? **C.** Describe the functions and differences of the two kinds of sweat glands discussed in class.

STUDY GUIDE - Test 3
Chapter 8 & 7
Circulatory System and Blood

- 1.A.** What are some functions of the circulatory system as learned in class? **B.** Name and describe the main structures of the circulatory system.
- 2. A.** What is the basic function of a heart? **B.** What is pulmonary circulation and what is its purpose? **C.** What is systemic circulation and what is its purpose?
- 3.** Describe the following structures in terms of location and function as related to the human heart/circulatory system: **A.** right atrium, left atrium, right ventricle, left ventricle, **B.** superior vena cava, inferior vena cava, aorta, pulmonary artery, pulmonary veins, **C.** aortic/pulmonary semi-lunar veins, bicuspid valve or A-V valve, tricuspid valve or A-V valve, septum.
- 4.** Be able to locate any of these on a diagram. **A.** Trace the path of blood (write out the structures) starting with the left ventricle. Be able to trace the path from any point in the circulatory system. **B.** Put a check next to those structures that contain oxygenated blood.
- 5. Heartbeat: A.** What is the cardiac cycle? **B.** How long is the cardiac cycle? **C.** Describe the following as they pertain to the cardiac cycle (include time for each): diastole, systole.
- 6. A.** What accounts for the “heart sounds” (lub-Dupp)? **B.** What is a possible cause for a heart murmur? **C.** What are you “feeling” when you take your pulse?
- 7. A.** What is the natural pacemaker of the heart and where is it located? **B.** Describe how the pacemaker works.
- 8. A.** What is atherosclerosis? **B.** What causes a heart attack?
- 9.** Describe the following blood vessels in terms of location and/or direction of blood flow, relative sizes, and basic structure: arteries, veins, arterioles, venules, capillaries.
- 10. A.** Define blood pressure. **B.** Explain what the two numbers represent when measuring someone’s blood pressure (i.e. 120/80). **C.** Which is systolic and which is diastolic? **D.** Which blood vessels have the greatest blood “pressure” why?
- 11. A.** What does the lymphatic system consist of? **B.** What two other systems does it function with? **C.** How does the lymphatic system work with the circulatory system?
- 12. Blood: A.** What is Plasma? What is it composed of and what percent of the blood does it represent? **B.** Cellular components of the blood account for what percentage of blood volume? **C.** What are the three cellular components of blood as discussed in class? **D.** Describe each of these components as far as structure and function.

STUDY GUIDE - Test 3

Respiratory System and Cellular Respiration

Chapters 10 and 3 (parts of)

- 1. A.** Name the major structures in the human respiratory system and give their function(s). **B.** Which are used for air conducting and which for gas exchange? **C.** Be able to locate them on a diagram.
- 2. A.** Name and explain some functions of the respiratory system as outlined in class.
- 3. A.** Which blood gas concentration controls breathing? **B.** By what process is gas exchanged between the capillaries and the tissues of the body? **C.** Why does your breathing rate increase when you exercise? **D.** What structures expand or “move” to allow the chest cavity to expand during air intake?
- 4.** Describe the following respiratory diseases: **A.** emphysema **B.** tuberculosis **C.** asthma
- 5. A.** What is cellular respiration? **B.** Where does it occur? **C.** What is the general formula for cellular respiration?
- 6. A.** Name and describe the four basic steps involved in cellular respiration. **B.** What happened to your original glucose at the end of the Krebs's Cycle? **C.** In which step is most of the ATP made?