# Ch 20: Circulatory, Immune, and Excretory Systems (30 points)

## A Balancing Act

List some substances in the body that must be kept in proper balance. Water, blood, food, hormones, enzymes…

How do the kidneys help maintain homeostasis? They filter waste substances out of the blood and help restore the proper amounts of other substances back to the blood

## Blood

List at least three characteristics of the following blood cells:

* Erythrocytes red, donut shaped, carry oxygen, made in bone marrow
* Leukocytes white, several different kinds, fight pathogens
* Platelets funny shaped, small, helpful in clotting, don’t have a nucleus, die quickly

What part of the body manufactures red blood cells? Bone marrow

Which four parts of the body manufacture or mature white blood cells? Bone marrow, spleen, tonsils, thymus gland

How does blood clot? Platelets rush to the broken area, stick together, then burst and release a substance that causes fibers to make a net which plugs the hole

What percentage of blood plasma is water? 90-95%

List three substances that are transported by blood. Dissolved foods, wastes, minerals, hormones, sugar

What kind of substance regulates blood? proteins

List the kinds of blood types a person can have. AA, AO, AB, BB, BO, OO (A, B, O plus the Rh factor +/-)

## The Heart

\*\*Draw and label the following parts of the heart: Pericardium, Pulmonary veins and arteries, Aorta, Vena Cava, R/L Atria, R/L Ventricles

What inside the heart causes a heart attack? A diminished supply of blood and oxygen to the heart

Explain how the following can contribute to a heart attack:

* Atherosclerosis walls of the arteries narrow, making blood volume lower and making it easier for clots to stick
* Coronary embolism clots floating in the blood may clog the artery
* Coronary thrombosis fatty deposits may accumulate in the artery and stick together forming a plug

## Immune System

What two things are the body’s first line of defense against harmful substances? Skin, mucous membranes

What inside the stomach kills most foreign substances? Hydrochloric acid

How do inflammation and fever help with killing pathogens? Inflammation floods the germs with blood and fluid, with nutrients and white blood cells; fever tries to burn them off

Name the two different types of lymphocytes (white blood cells). B cells, T cells

What is the role of antibodies in the immune system? To fight a specific antigen (toxic chemical)

How does a vaccine work? By introducing a weakened form of a pathogen with its antigens, the body is stimulated to produce antibodies and memory cells to fight the disease

How is an allergy a malfunction in the immune system? It causes your body to produce an immune response (attack) against a substance that is ordinarily not harmful; sometimes the response is a life-threatening overreaction

What happens in an autoimmune disease? The body attacks its own cells or tissues as harmful

## Excretory System

Name the four main parts of the excretory system. Kidneys, ureters, bladder, urethra

How does dialysis help a person with bad kidneys? A machine cleans/filters wastes from the blood in place of kidneys

How can a patient’s urinalysis help a doctor? Since wastes and harmful substances are taken out of the blood by kidneys, and dumped into the urine, a doctor can tell what unusual or abnormal amounts of substances/bacteria are in a patient by a urine test

## Vocabulary 20 (23 points)

Homeostasis

Erythrocytes

Hemoglobin

Phlebotomy

Anemia

Leukocytes

Antibodies

Platelets

Blood plasma

Cardiovascular

Arteries v. Veins vs. Capillaries

Pulse v. Blood Pressure

Atherosclerosis

Pathogens

Inflammation

Antigens

Lymphocytes

Antibodies

Active v. Passive Immunity

Allergy

Autoimmune disease

Diabetes

Nephron