

Name

Key

Human Body Systems Study Guide

- List correctly, from simplest to most complex, the five levels of cellular organization, and explain each level.
 - Cells - Smallest unit carrying out the functions of life.
 - Tissues - A group of similar cells that perform the same function.
 - Organs - a structure in the body that is composed of different kinds of tissues
 - Organ systems - a group of organs that work together to perform a ~~real~~ major function in the body.
 - Organism - any living thing.
- Define homeostasis, and explain why is it important in the human body.
The maintenance of a stable internal environment in an organism, despite external conditions; Your body is designed to perform best in certain conditions & when those change your body responds - Ex: cold - your body shivers to produce heat
- Describe the two layers of the integumentary system, and what is found within each layer.
 - Epidermis - outer layer of skin; fingernails grow here
 - Dermis - inner layer of skin; blood vessels, nerves, hair follicles, oil glands & sweat glands located here.
- To bend a joint, one muscle Contracts while another muscle returns to its original length.
- What are the two types of bone marrow? List what each type produces, and where each is found in the body?
 - Red bone marrow - produces red blood cells, found in long bones
 - Yellow bone marrow - stores fat that your body uses as energy
- What are the three parts of the circulatory system, and what is each parts function?
 - Heart - a muscle that contracts to move O_2 & CO_2 throughout the body. Works closely with the respiratory system.
 - Blood vessels - passageways throughout the body that transports needed materials.
 - Blood - a type of connective tissue that includes red blood cells, white blood cells, & platelets that carry needed substances throughout the body.
- Lymph nodes may enlarge when they are helping the body fight an infection.
- What is the body's FIRST line of defense against pathogens? Integumentary System (skin)
- Water from the digestive system is absorbed in the large intestine.
- Describe the mutualistic relationship between bacteria in the intestines.
Bacteria produce vitamin K & they ~~live~~ live in our intestines
- In gas exchange, Oxygen passes from the alveoli into the blood.
- The organs of the endocrine system produce chemical messengers called hormones.
- What are the three types of muscles found in your body? Name each type, describe the muscle movement (voluntary or involuntary), tell where it is found, and its function.
 - Cardiac - Found only in your heart; involuntary; contract to pump blood. ^{striated}
 - Smooth - Found inside many organs, stomach, & blood vessels; involuntary; contract to move food through the digestive system; not striated
 - Skeletal - attached to bones to help you move by pulling on bones; voluntary; striated muscle

14. What is the cell theory?

- All living things are composed of cells.
- Cells are the basic units of structure & function in living things.
- All cells are produced from other living things.

15. What are the two types of immunity? Compare and contrast the two types of immunity.

- Active immunity - Immunity that occurs when a person's own immune system produces antibodies in response to the presence of a pathogen.
- Passive immunity - Immunity in which antibodies are given to a person rather than produced within the person's own body.

16. The nervous system is divided up into the central nervous system (CNS) and the peripheral nervous system (PNS). Explain how these two systems work together, and the parts (with their functions) that make up each system.

- CNS - the division of the nervous system consisting of the brain & spinal cord; everything is communicated to & from the CNS;
- PNS - the division of the nervous system consisting of nerves that branch out from the central nervous system & connect it to the rest of the body; involved in both involuntary & voluntary actions

17. A synapse is the space between the axon and the structure that receives the nerve impulse. Hint: Look in the textbook at a structure (diagram) of a nerve.

18. The endocrine system is often described as a thermostat. Explain this comparison, and describe how a negative feedback mechanism works. When hormone levels reach certain amounts, a signal is received to turn off hormone production, etc.

19. List the organs of the human body that are involved in excretion.

Skin, kidneys, liver, & lungs

20. The respiratory system brings oxygen into the body, and release carbon dioxide back into the environment.

21. List what is produced (what is given off) during respiration. Carbon dioxide, H₂O, & energy

22. The invention of the microscope made it possible to see cells.

23. Vertebrae are the bones that form the backbone.

24. What are the functions of the integumentary system?

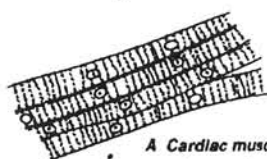
1st line of defense against pathogens by keeping stuff inside & pathogens out; helps maintain homeostasis, eliminates wastes, gathers info. from the environment through nerves in the skin; and produce vitamin D to help the body absorb calcium.

25. What is the main function of the nervous system? carry messages back & forth between the brain & other parts of the body.

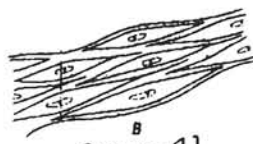
26. What are the four different types of tissues in the human body? How are they grouped? Give a description and their function for each group.

- epithelial - functions as a boundary, covers inner & outer surfaces of the body ^{according to their function}
- nerve - functions as a messaging system carrying electrical impulses between your brain & body
- muscle - functions in movement, and can be voluntary or involuntary
- connective - connects things together providing support, protection, strength, padding, & insulation

27. Name each type of muscle tissue pictured to the left **and** tell whether each type of muscle tissue is voluntary or involuntary.



A Cardiac muscle
- involuntary
- striated



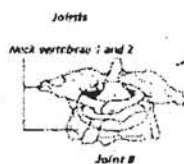
B
- smooth muscle
- involuntary



C
- skeletal muscle
- voluntary
- striated

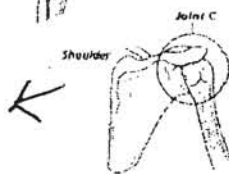
28. Name each of four joints below. Describe where they are found in the human body, and describe each joint's movement.

Hinge joint: produces angular movements (up & down) & found at elbow & knee.



Pivot joint: produces rotational movement around a fixed point & found in your neck.

Ball & socket joint: allows for circular movement (rotational movements) and is found in your hips & shoulders.



Gliding joint: allows one bone to slide over another & is found in your skull, wrist, & ankle.

29. Using the diagram of the digestive system to the right. Name each of the labeled parts (organs), describe each part's function in the digestive system, how food moves through the system (describe the muscle involved), and describe the difference between chemical and mechanical digestion.

The Digestive System

A. esophagus - food enters here from your mouth & is moved by smooth muscle to your stomach

B. stomach - mechanical & chemical digestion occurs here

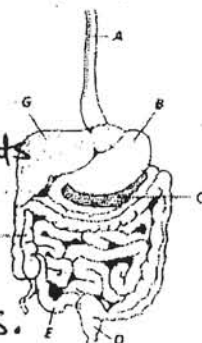
E. small intestine - receives digested food from stomach, nutrients are absorbed here

F. large intestine - receives undigested food, water is absorbed, & food is readied for elimination from the body.

* smooth muscle moves food through the digestive process.

* chemical digestion - saliva & enzymes break down food - occurs in mouth & stomach

* mechanical digestion - begins in mouth with teeth & cont when stomach contracts.



30. Using the diagram of the respiratory system to the right. Name each of the labeled parts

(organs), describe each part's function in the respiratory system, and explain how gasses are exchanged during respiration. Also describe the difference between breathing and respiration.

A. Pharynx - air enters from the nose

C. Trachea - leads from pharynx to the lungs

D. lung - site of respiration

E. Diaphragm - large muscle that contracts & relaxes during breathing

F. Alveoli - site of gas exchange (O_2 & CO_2) inside the lungs

* Breathing - Inhaling & exhaling

* Respiration - Chemical reactions inside your cells where oxygen & carbon dioxide are exchanged.

