Kingdom animal

Kingdom animal is a consist all animals which that character by the following.

1- Unicellular or multicellular Organisms.
2- Heterotrophic Organisms.
3- Eukaryotic Organisms.
4- Mobility and Adapt in the environment.
5- Reproduce by sexual Reproduction.
6- They have specialized tissues, Organs, and organ systems.
7- This kingdom includes the invertebrate and vertebrate.
8- The invertebrate consists, spongy cnidarian, flatworms, Round worms, , Mollusks, segmented worms, Echinoderms, Arthropods, and chordates.
9- The vertebrate consists, the Fishes, Amphibians Reptiles, Birds and mammals.
10- Arthropods is consists, class Arachnids.
Ex: spiders, insects, Mosquito, scorpions, Mites and ticks.

The characteristics of mammals?

1- They have hairs.
2- They produce milk.
3- Body temperature is constant.
4- They have diaphragm.
5- They have four chambered hearts.
6- They have specialized teeth.
7- They have modified limbs.
8- They have a highly developed brains.

Q1: name four characters of mammals.

Q2: Describe three mammal adaptations for obtaining and consuming food.

Class: mammals are divided into three groups Mammalia a:

1- Order, Monotremata-egg laying Mammals, 3 species.
2- Order, Marsupialia-pouched mammals, 280 species.
3- Order of placental mammals, 4418 species.

The human body

1- Protection, support, and locomotion.
2- The Digestive and Endocrine systems.
3- The nervous system.
4- Respiration and, Circulation, and Excretion.
5- Reproduction and Development.
6- Immunity from Disease.

Structure and function of the integumentary system.

Skin, the man organ of integumentary system, is composed of layers of lagers of the four types of body tissues.

1- Epithelial tissues.
2- Connective tissues.
3- Muscle tissues.
4- Nervous tissues.

Skin is composed of two principal layers:

1- The epidermis, and dermis, each layer has a unique structure and performs a different function in the body.

2- Epidermis is the principal layer of the skin, it is made up of two parts, (a)- an exterior and, (b)-interior portion.
   - The Exterior layer of the Epidermis consist of 25 to 30 layers of death.
   - The interior layer of the epidermis contains living cells that continually divide to replace the dead cells.

1- Dermis is the inner layer of skin, the second principal layer, this layer is thick than the Epidermis layer. The thickness of the dermis varies in different parts of the body, depending on the function of that part. The dermis contains structures such as blood vessels, nerves, hair follicles, sweat glands and oil gland.

Skin: The body's protection:

1- Skin is composed of the Epidermis, with each layer performing various function.
2- Skin regulates body temperature, protects the body, and functions as sense organ.
3- Skin responds to injury by producing new cells and signaling a response to fight infection.

Bones : The body's support.

1- The skeleton is made up of the axial and appendicular skeletons.
2- Joints allow movement between two or more bones where they meet.
3- Osteocytes are living bone cells.
4- Bones are formed from Cartilage as a human embryo develops.

5- The skeleton supports the body, provides a place for muscle attachment, protect vital organs, manufactures blood cells, and serves as a storehouse for calcium and phosphorus.

Muscles for locomotion:

- There are three types of tissue, smooth, cardiac, and skeletal:

1- Smooth Muscles: lines organs, contracting to move materials through the body.

2- Cardiac muscle: contracts rhythmically to keep the heart beating.

3- Skeletal muscle: is attached to bones and contracts to produce body movement.

- Muscle tissue consists of muscle fibers, which can be divided into smaller units called myofibrils.
- Muscle consists as filaments within myofibrils slide toward one another.

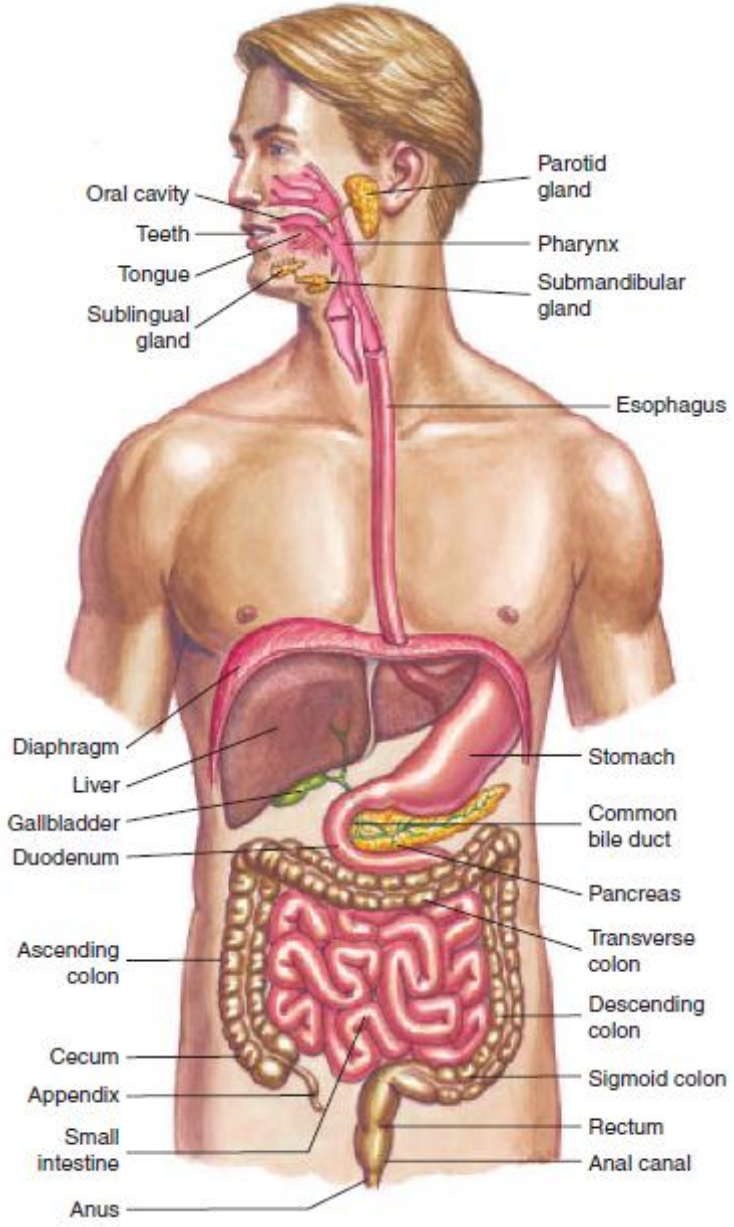
Digestion of ameal:

1- Digestion begins in the mouth with both mechanical and chemical action. The esophagus transports food from the mouth to the stomach.

2- Chemical and mechanical digestion continue in the acidic environment of the stomach.

3- Steroid hormones bind to receptors inside the target cells, and amino acid hormones bind to plasma membrane receptors.

4- Hormones are involved in the regulation of blood glucose and calcium levels, as well as response to stress.



The Digestive System
The teeth, tongue, and enzymes from the salivary glands modify the food before it is swallowed. The stomach adds acid and enzymes and further changes the texture of the food. The food is eventually emptied into the duodenum, where the liver and pancreas add their secretions. The small intestine also adds enzymes and is involved in absorbing nutrients. The large intestine is primarily involved in removing water.

The Nervous system

1- The neuron is the basic structural unit of the nervous system. Impulses move along a neuron in a wave of changes.

2- The central nervous system consists of the brain and spinal cord.

3- The peripheral nervous system relays messages to and from og the somatic and autonomic nervous system.

The senses:

1- The senses of the tasts and smell are responses to chemical stimulation.
2- The sense of sight is a response to light stimulation.
3- The senses of hearing, balance, and touch are responses to mechanical stimulation.
4- In the small intestine digestion is completed and food is absorbed. The liver and pancreas play key roles in digestion.
5- The large intestine absorbs water before indigestible materials are eliminated.

Nutrition

1- Carbohydrates are the body's main source of energy. Fats are used to store energy proteins are used as building materials.
2- Minerals serve as structural or take part in chemical reactions. Vitamins are needed for growth and Metabolism.
3- Water facilitates chemical reaction in the body, acts as a solvent, and helps maintain internal body temperature.

The Endocrine system:

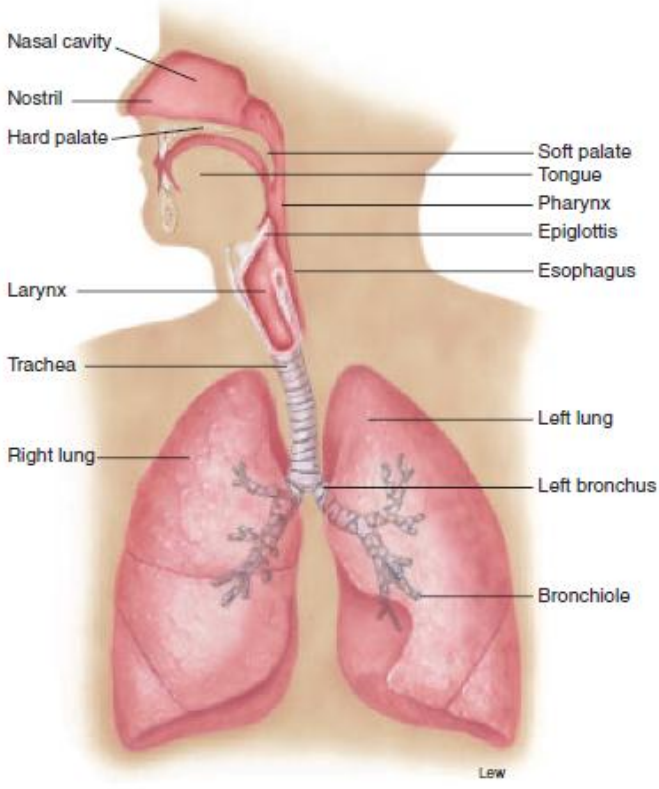
1- The endocrine glands work with the nervous system to regulate body function.
2- Blood hormone levels are controlled by a negative feedback system.

The respiratory system

1- External respiration involves taking in air through the passageways of respiratory system and exchanging gases in the alveoli of the lungs.

2- Breathing involves contraction of the diaphragm, the rush of air into the lungs, relaxation of the diaphragm, and air being pushed out of the lungs.

3- Breathing is partially controlled by the chemistry of the blood.

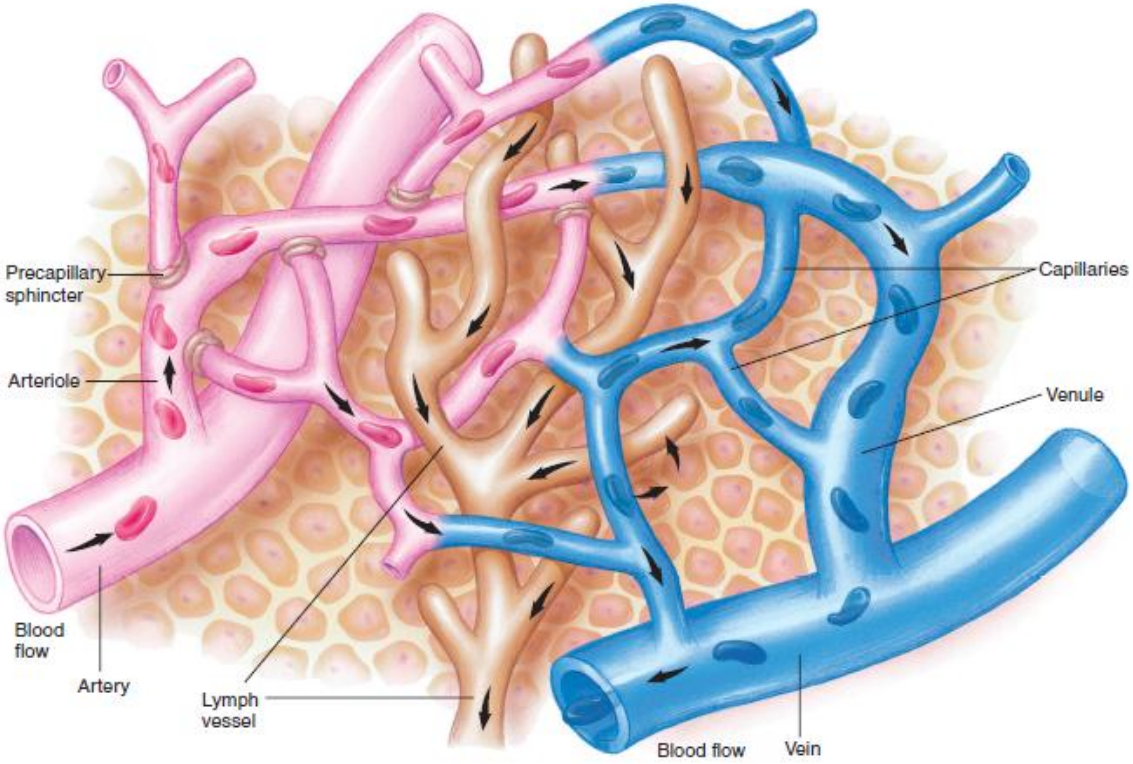


Respiratory Anatomy
Although the alveoli of the lungs are the places where gas exchange takes place, there are many other important parts of the respiratory system. The nasal cavity cleans, warms, and humidifies the air entering the lungs. The trachea is also important in cleaning the air going to the lungs.

The Circulatory system:

1- Blood is composed of red and white blood cells, platelets, and plasma, blood carriers oxygen, carbon dioxide, and other substances through the body.

2- Blood cell antigens determine blood group and are important in blood transfusions.
3- Blood is carried by arteries, veins, and capillaries.
4- Blood is pushed through the vessels by the heart.



Capillaries
Capillaries are tiny blood vessels. Exchange of cells and molecules can occur between blood and tissues through their thin walls. Molecules diffuse in and out of the blood, and cells such as monocytes can move from the blood through the thin walls into the surrounding tissue. There is also a flow of liquid through holes in the capillary walls. This liquid, called lymph, bathes the cells and eventually enters small lymph vessels that return lymph to the circulatory system near the heart.

The uninary system

1- The urinary system consists of the kidneys, ureters.
2- The urinary bladder, and system helps maintain the homeostasis of body fluids.
3- The nephrons of the kidneys filter wastes from the blood.

The reproduction and Development

Human reproduction systems.

1- The male reproductive system produces sperm and the female reproductive system produces eggs.
2- Through the control of the hypothalamus and pituitary hormones act on the productive system as well as on other body systems. Hormone levels are regulated by negative feedback.
3- Changes in males and females of puberty are the result of the production of FSH, LH, and other sex hormones.
4- Under the control of hormones, the menstrual cycle produces a mature egg and prepares the uterus for receiving a fertilized egg.

Development before brith.

1- Fertilization occurs in the oviduct. The zygote undergoes mitotic division as it travels down the oviduct. The ball of cells that develops from the fertilized egg implants in the uterine wall.
2- The Embryo changes from small ball of cells to a well-developed fetus over the course of nine months.
3- The developing fetus is supported by oxygen and nutrients from the mother, exchanged through the umbilical cord.

Birth, Growth and Aging

1- Birth involves dilation of the cervix, expulsion of the baby, and expulsion of the placenta.
2- Infancy, childhood, adolescences, and adulthood, are the stages of human development. Human growth hormone (H G-H) produces growth hormone in all body cells, especially in the cells of the skeleton and muscles.

Notes * FSH= follicle – Stimulating hormone.

* LH= Luteinizing hormone.

*Immunity from Disease

*Defense against infectious diseases:

The nature of disease

1- Infection diseases are caused by the presence of pathogens in the body.
2- The cause of an infection can be established by following Koch's postulates.
3- Animals, inducing humans, and nonliving objects can serve as reservoirs of pathogens. Pathogens can be transmitted by direct contact, by a contaminated object, through the air, or by a vector.
4- Symptoms of a disease are caused by direct damage to cells or by toxins produced by the pathogen.
5- Some diseases occur periodically, whereas others are endemic occasionally, a disease reaches epidemic proportions.
6- Some infectious diseases can be treated with antibiotics, but pathogens may become resistant to these drags.

Defense against infection Diseases

1- Innate immunity provides general protection against various pathogens.

2- Innate immunity includes the physical barrier of the skin as well as mucus, lysozymes in sweat, oil, tears, and saliva, the inflammation response, Phagocytosis, and interferon's.
3- Acquire immunity provides a way of fighting specific pathogens by recognizing invaders as nonself. It includes antibody and cellular immunity.
4- The lymphatic system consists of the lymphatic vessels and the lymphatic organs. Lymph nodes, tonsils, spleen, and thymus.
5- Passive Immunity develops as result of a quireing antibodies generated in another host. Active aquire immunity develops when the body is directly exposed to antigens and produces antibodies in response.

The End