Biology 12 Chapter 11.1

**ANSWER KEY !!!!!!TYPES OF TISSUES**

***Read pages 198-204 and answer the following questions:***

1. Starting with the smallest category, list the 4 biological levels of organization***.[cell, tissue, organ, system]***
2. List the four main types of tissues.***[epithelial, connective, muscular, nervous]***
3. How are cancers classified? Give an example of how they are named***.[type of tissue] Ex carcinomas = epithelial; sarcoma = connective or muscle tissue; leukemia = blood; lymphomas = lymphoid tissue]***
4. Describe the various functions of epithelial tissue located on the external surface.***[external = protection from injury, desiccation, and pathogens]***
5. Describe the various functions of epithelial tissue located on the internal surface. ***Internal = protection, secretion, absorption, excretion, filtration]***
6. What are 2 ways that epithelial tissue is classified?***[cell type (squamous, cuboidal, columnar); number of cell layers (simple, stratified)***
7. Describe the following types of epithelium in a chart as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type of epithelium | Shape  | Simple or Stratified | Location | Function | Sketch |
| Squamous epithelium (simple) | ***Flattened cells*** | ***Simple*** | ***Capillaries, alveoli,***  | ***Diffusion, filtration, protection*** |  |
| Squamous epithelium (stratified) | ***Flattened***  | ***Stratified*** | ***Nose, mouth, esophagus, anus, vagina, skin*** | ***Protection, secretion,***  |  |
| Pseudostratified columnar epithelium | ***Layered appearance*** | ***pseu*** | ***Lining of trachea*** | ***Cilia, protection, movement of mucus*** |  |
| Cuboidal epithelium | ***Cube shaped*** | ***simple*** | ***Kidney, ovaries***  | ***Protection, secretion, absorption*** |  |
| Columnar epithelium | ***Rectangular shaped***  | ***simple*** | ***Intestine and uterus*** | ***Protection, secretion, absorption*** |  |

1. What is a basement membrane? What is it made of and what is its function?***[ joins an epithelium to underlying connective tissue; glycoproteins and collagen fibers; support]***
2. What are an exocrine and an endocrine gland***?[an epithelial cell that secretes a product (a) to ducts (b) to blood]***
3. Describe (sketch) the 3 types of junctions between cells. Describe their function and if possible give an example of a location in the body***.[tight: impermeable, intestines, kidney; gap: 2 p.m. channels join, hear and smooth muscle; adhesion: not touch but held by inercellualr filaments]***
4. What is the general function of connective tissue***? [binds organs together, provides support, protection, fills spaces, produces blood cells, and stores fat]***
5. What is the matrix of connective tissue? ***[space that separates connective tissue cells]*** What are the 3 possible fibers that make up a matrix***?[collagen, reticular, elastic]***
6. Create a chart to compare 7 types of connective tissue:

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Function | Location | Structure (Fibers/ cells) |
| Loose Fibrous Connective Tissue | ***Supports epithelium and internal organs; protective covering for internal organs, muscles, blood vessels, nerves*** | ***Lungs, arteries bladder (expansion)***  | ***Fibroblast cells separated by matrix with collagen and elastic fibers.*** |
| Dense Fibrous Connective Tissue | ***Tendons, (muscle to bone); Ligaments (bone to bone)*** | ***Between muscles and bones*** | ***Many collagen fibers packed together*** |
| Adipose Tissue | ***Insulation, organ protection, energy*** | ***Beneath skin, around kidneys, surface of heart*** | ***Fibroblasts store fat*** |
| Reticular Connective Tissue | ***Supports lymphatic tissues***  | ***lymph nodes, spleen, thymus and bone marrow*** | ***Meshwork*** |
| Hyaline Cartilage | ***structure*** | ***Nose, ends of long bones and ribs, rings in trachea, fetal skeleton*** | ***Very fine collagen fibers,***  |
| Elastic Cartilage | ***Flexible*** | ***ear*** | ***More elastic fibers,***  |
| Fibrocartilage | ***Withstand tension and pressure*** | ***Pads between vertebrae, wedges in knee joint*** | ***Matrix; strong collagen,*** |
| Compact Bone | ***Strength, support*** | ***Shaft of long bone*** | ***Osteon surrounded by hard matrix.***  |
| Spongy Bone | ***Supports and protects cells of red bone marrow*** | ***Ends of long bones***  | ***Hard matrix of inorganic salts, Ca+, salts and collagen fibers*** |
| Blood | ***See #15*** | ***Internal environment*** | ***See #14*** |

1. Name and describe the four components of blood***.[plasma:inorganic and organic substances dissolved in water; red blood cells: small biconcave disks without nuclei; white blood cells: larger, nucleus, fight infection; platelets: fragments of cells that aid in clotting]***
2. How does blood help maintain homeostasis***?[transports nutrients and oxygen, removes carbon dioxide and wastes, distributes heat, fluid, ion and pH balance, protect from disease and prevent fluid loss]***
3. Name three types of muscle tissue, their structure, function and location***.[smooth: cells lack striations, nuclei are irregular, involuntary, in walls of intestine, blood vessels; cardiac: walls of heart, striations, involuntary, single central nucleus, branched cells with intercalated disks; skeletal: voluntary, cylindrical and long, striated]***
4. Where is nervous tissue found?[ ***brain and spinal cord]***
5. What are the 3 parts of a neuron (specialized cell)? ***[dendrites, cell body and axon]***
6. What are the 3 functions of the nervous system? ***[ sensory input, integration of data, motor output]***
7. What are neuroglia and what are the 3 types***?[cells that support and nourish neurons; microglia, astrocytes and oligodendrocytes]***