A&P 04 Tissue Level of Organization Essay

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OpenStax College. Anatomy & Physiology, OpenStax-CNX Web site. http://cnx.org/content/col11496/1.6/, Jun 11, 2014

4. Chapter: A&P 04 Tissue Level of Organization Essay

1. A&P 04 Tissue Level of Organization Essay Questions

4.1.1. View this slideshow (http://openstaxcollege.org/l/stemcells) to lea...

Author: OpenStax College

View this slideshow (http://openstaxcollege.org/l/stemcells) to learn more about stem cells.

How do somatic stem cells differ from embryonic stem cells?

- Most somatic stem cells give rise to only a few cell types.

Check the answer of this question online at QuizOver.com:
Question: View this slideshow http://openstaxcollege OpenStax College Anatomy

4.1.2. Watch this video (http://openstaxcollege.org/l/etissues) to find ou...

Author: OpenStax College

Watch this video (http://openstaxcollege.org/l/etissues) to find out more about the anatomy of epithelial tissues.

Where in the body would one find non-keratinizing stratified squamous epithelium?

- The inside of the mouth, esophagus, vaginal canal, and anus.

Check the answer of this question online at QuizOver.com:
Question: Watch this video http://openstaxcollege OpenStax College Anatomy

4.1.3. Visit this link (http://openstaxcollege.org/l/10quiz) to test your ...

Author: OpenStax College

Visit this link (http://openstaxcollege.org/l/10quiz) to test your connective tissue knowledge with this 10-question quiz.

Can you name the 10 tissue types shown in the histology slides?

- Click at the bottom of the quiz for the answers.

Check the answer of this question online at QuizOver.com:
Question: Visit this link http://openstaxcollege OpenStax College Anatomy Quest

4.1.4. Watch this video (http://openstaxcollege.org/l/musctissue) to learn...

Author: OpenStax College

Watch this video (http://openstaxcollege.org/l/musctissue) to learn more about muscle tissue.

In looking through a microscope how could you distinguish skeletal muscle tissue from smooth muscle?

- Skeletal muscle cells are striated.

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4.1.5. Follow this link (http://openstaxcollege.org/l/nobel) to learn more...

Author: OpenStax College

Follow this link (http://openstaxcollege.org/l/nobel) to learn more about nervous tissue.

What are the main parts of a nerve cell?

- Dendrites, cell body, and the axon.

Check the answer of this question online at QuizOver.com:
Question: Follow this link http://openstaxcollege OpenStax College Anatomy

4.1.6. Watch this video (http://openstaxcollege.org/l/healinghand) to see ...

Author: OpenStax College

Watch this video (http://openstaxcollege.org/l/healinghand) to see a hand heal.

Over what period of time do you think these images were taken?

- Approximately one month.

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Question: Watch this video http://openstaxcollege OpenStax College Anatomy

4.1.7. Watch this video (http://openstaxcollege.org/l/tumor) to learn more...

Author: OpenStax College

Watch this video (http://openstaxcollege.org/l/tumor) to learn more about tumors. What is a tumor?

- A mass of cancer cells that continue to grow and divide.

Check the answer of this question online at QuizOver.com:
Question: Watch this video http://openstaxcollege OpenStax College Anatomy

4.1.8. Identify the four types of tissue in the body, and describe the maj...

Author: OpenStax College

Identify the four types of tissue in the body, and describe the major functions of each tissue.

- The four types of tissue in the body are epithelial, connective, muscle, and nervous.
  Epithelial tissue is made of layers of cells that cover the surfaces of the body that come into contact with the exterior world, line internal cavities, and form glands.
  Connective tissue binds the cells and organs of the body together and performs many functions, especially in the protection, support, and integration of the body.
  Muscle tissue, which responds to stimulation and contracts to provide movement, is divided into three major types:
  skeletal (voluntary) muscles, smooth muscles, and the cardiac muscle in the heart.
  Nervous tissue allows the body to receive signals and transmit information as electric impulses from one region of the body to another.

Check the answer of this question online at QuizOver.com:
Question: Identify the four types of tissue in the OpenStax College Anatomy

4.1.9. The zygote is described as totipotent because it ultimately gives r...

Author: OpenStax College

The zygote is described as totipotent because it ultimately gives rise to all the cells in your body including the highly specialized cells of your nervous system.

Describe this transition, discussing the steps and processes that lead to these specialized cells.

- The zygote divides into many cells. As these cells become specialized, they lose their ability to differentiate into all tissues.
  At first they form the three primary germ layers. Following the cells of the ectodermal germ layer, they too become more restricted in what they can form.
  Ultimately, some of these ectodermal cells become further restricted and differentiate in to nerve cells.

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Question: The zygote is described as totipotent OpenStax College Anatomy Quest

4.1.10. What is the function of synovial membranes?

Author: OpenStax College

What is the function of synovial membranes?

- Synovial membranes are a type of connective tissue membrane that supports mobility in joints. The membrane lines the joint cavity and contains fibroblasts that produce hyaluronan, which leads to the production of synovial fluid, a natural lubricant that enables the bones of a joint to move freely against one another.

Check the answer of this question online at QuizOver.com:
Question: What is the function of synovial membranes OpenStax College Anatomy

4.1.11. The structure of a tissue usually is optimized for its function. De...

Author: OpenStax College

The structure of a tissue usually is optimized for its function. Describe how the structure of individual cells and tissue arrangement of the intestine lining matches its main function, to absorb nutrients.

- Columnar epithelia, which form the lining of the digestive tract, can be either simple or stratified. The cells are long and narrow. The nucleus is elongated and located on the basal side of the cell. Ciliated columnar epithelium is composed of simple columnar epithelial cells that display cilia on their apical surfaces.

Check the answer of this question online at QuizOver.com:
Question: The structure of a tissue usually is OpenStax College Anatomy Quest

4.1.12. One of the main functions of connective tissue is to integrate orga...

Author: OpenStax College

One of the main functions of connective tissue is to integrate organs and organ systems in the body. Discuss how blood fulfills this role.

- Blood is a fluid connective tissue, a variety of specialized cells that circulate in a watery fluid containing salts, nutrients, and dissolved proteins in a liquid extracellular matrix.
  Blood contains formed elements derived from bone marrow. Erythrocytes, or red blood cells, transport the gases oxygen and carbon dioxide.
  Leukocytes, or white blood cells, are responsible for the defense of the organism against potentially harmful microorganisms or molecules.
  Platelets are cell fragments involved in blood clotting.
  Some cells have the ability to cross the endothelial layer that lines vessels and enter adjacent tissues. Nutrients, salts, and waste are dissolved in the liquid matrix and transported through the body.

4.1.13. Why does an injury to cartilage, especially hyaline cartilage, heal...

Author: OpenStax College

Why does an injury to cartilage, especially hyaline cartilage, heal much more slowly than a bone fracture?

- A layer of dense irregular connective tissue covers cartilage. No blood vessels supply cartilage tissue. Injuries to cartilage heal very slowly because cells and nutrients needed for repair diffuse slowly to the injury site.

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Question: Why does an injury to cartilage especially OpenStax College Anatomy

4.1.14. You are watching cells in a dish spontaneously contract.
They are a...

Author: OpenStax College

You are watching cells in a dish spontaneously contract.

They are all contracting at different rates; some fast, some slow. After a while, several cells link up and they begin contracting in synchrony. Discuss what is going on and what type of cells you are looking at.

- The cells in the dish are cardiomyocytes, cardiac muscle cells. They have an intrinsic ability to contract. When they link up, they form intercalating discs that allow the cells to communicate with each other and begin contracting in synchrony.

Check the answer of this question online at QuizOver.com:
Question: You are watching cells in a dish spontaneously OpenStax College Anatomy

4.1.15. Why does skeletal muscle look striated?

Author: OpenStax College

Why does skeletal muscle look striated?

- Under the light microscope, cells appear striated due to the arrangement of the contractile proteins actin and myosin.

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Question: Why does skeletal muscle look striated OpenStax College Anatomy Quest

4.1.16. Which morphological adaptations of neurons make them suitable for t...

Author: OpenStax College

Which morphological adaptations of neurons make them suitable for the transmission of nerve impulse?

- Neurons are well suited for the transmission of nerve impulses because short extensions, dendrites, receive impulses from other neurons, while a long tail extension, an axon, carries electrical impulses away from the cell to other neurons.

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Question: Which morphological adaptations of neurons OpenStax College Anatomy

4.1.17. What are the functions of astrocytes?

Author: OpenStax College

What are the functions of astrocytes?

- Astrocytes regulate ions and uptake and/or breakdown of some neurotransmitters and contribute to the formation of the blood-brain-barrier.

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Question: What are the functions of astrocytes OpenStax College Anatomy Quest

4.1.18. Why is it important to watch for increased redness, swelling and pa...

Author: OpenStax College

Why is it important to watch for increased redness, swelling and pain after a cut or abrasion has been cleaned and bandaged?

- These symptoms would indicate that infection is present.

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Question: Why is it important to watch for increased OpenStax College Anatomy

4.1.19. Aspirin is a non-steroidal anti-inflammatory drug (NSAID) that inhi...

Author: OpenStax College

Aspirin is a non-steroidal anti-inflammatory drug (NSAID) that inhibits the formation of blood clots and is taken regularly by individuals with a heart condition.

Steroids such as cortisol are used to control some autoimmune diseases and severe arthritis by downregulating the inflammatory response.

After reading the role of inflammation in the body's response to infection, can you predict an undesirable consequence of taking antiinflammatory drugs on a regular basis?

- Since NSAIDs or other anti-inflammatory drugs inhibit the formation of blood clots, regular and prolonged use of these drugs may promote internal bleeding, such as bleeding in the stomach. Excessive levels of cortisol would suppress inflammation, which could slow the wound healing process.

4.1.20. As an individual ages, a constellation of symptoms begins the decli...

Author: OpenStax College

As an individual ages, a constellation of symptoms begins the decline to the point where an individual's functioning is compromised.

Identify and discuss two factors that have a role in factors leading to the compromised situation.

- The genetic makeup and the lifestyle of each individual are factors which determine the degree of decline in cells, tissues, and organs as an individual ages.

Check the answer of this question online at QuizOver.com:
Question: As an individual ages a constellation of OpenStax College Anatomy

4.1.21. Discuss changes that occur in cells as a person ages.

Author: OpenStax College

Discuss changes that occur in cells as a person ages.

- All cells experience changes with aging. They become larger, and many cannot divide and regenerate.
  Because of alterations in cell membranes, transport of oxygen and nutrients into the cell and removal of carbon dioxide and waste products are not as efficient in the elderly.
  Cells lose their ability to function, or they begin to function abnormally, leading to disease and cancer.

Check the answer of this question online at QuizOver.com:
Question: Discuss changes that occur in cells as a OpenStax College Anatomy