



CREST
Olympiads
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CREST Science Olympiad (CSO) **Worksheet** *for* **Class 9**



Topic

Animal Tissues



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Worksheet on Animal Tissues

1. During a laboratory experiment, students observed cells with long, thin hair-like extensions arising from a central cell body. Their teacher told her that this cell is involved in transmitting electrical signals for communication, sensory input, and motor control. What type of cells are they most likely observing?
- Neurons
 - Red blood cells
 - Muscle fibres
 - Epithelial cells

2. In the following question, you will find an assertion and a reason. Select the appropriate option that applies.

Assertion: Areolar connective tissue plays a significant role in supporting and connecting various tissues and organs in the body.

Reason: Areolar connective tissue contains large amounts of fat cells that provide cushioning and support.

- Both assertion and reason are true, and the reason is a correct explanation of the assertion.
 - Both assertion and reason are true, but the reason is NOT a correct explanation of the assertion.
 - Assertion is true, but the reason is false.
 - Assertion is false, but the reason is true.
3. You are a medical researcher investigating the effects of smoking on lung tissue. If you were to find ciliated epithelium impaired in a smoker's respiratory tract, what immediate consequence would you expect?
- Enhanced mucus production due to increased ciliary movement
 - Impaired mucus clearance due to reduced ciliary movement
 - Strengthened lung structure due to ciliary damage
 - Increased airflow due to improved ciliary function
4. The table below shows the types of animal tissues and their main functions. Which tissue is correctly matched with its function?

Tissue Type	Main Function
Connective Tissue	Movement and contraction
Muscular Tissue	Sensory perception and response
Epithelial Tissue	Protection of body surfaces and organs
Nervous Tissue	Rapid diffusion and filtration

- a. Connective tissue
 - b. Muscular tissue
 - c. Epithelial tissue
 - d. Nervous tissue
5. **A marathon runner experiences extreme fatigue and muscle cramps during a race due to a lack of oxygen supply to the muscle cells. Which type of muscle tissue is primarily responsible for this fatigue?**
- a. Smooth muscle tissue
 - b. Skeletal muscle tissue
 - c. Cardiac muscle tissue
 - d. Elastic muscle tissue



Answer Key

1. a - The description of cells with long, thin hair-like extensions arising from a central cell body corresponds to neurons. Neurons are specialised cells of nervous tissue that transmit electrical signals throughout the body. These hair-like extensions are called dendrites and axons. Dendrites receive signals from other neurons, while the axon transmits signals to other neurons or effector cells. This unique morphology is characteristic of neurons and allows them to communicate and transmit information within the nervous system.
2. c - Assertion is true, but the reason is false.
The assertion "Areolar connective tissue plays a significant role in supporting and connecting various tissues and organs in the body" is true. Areolar connective tissue is a loose connective tissue that provides structural support and connects different tissues and organs. The reason "Areolar connective tissue contains large amounts of fat cells that provide cushioning and insulation" is incorrect. While areolar tissue contains various types of cells and fibres, it does not contain large amounts of fat cells. Instead, adipose tissue is responsible for storing fat and providing cushioning and insulation.
3. b - Ciliated epithelium in the respiratory tract plays a crucial role in moving mucus and trapped particles upward and out of the respiratory system. This mechanism helps to clear the airways and prevent the accumulation of harmful substances. If ciliary movement is reduced, as in the case of impaired ciliated epithelium due to smoking, the ability to clear mucus and particles is compromised. This can lead to mucus buildup, increased susceptibility to respiratory infections, and overall respiratory health problems.
4. c - Epithelial tissue primarily functions in the protection of body surfaces and organs, as well as the absorption and secretion of substances. It forms a barrier to shield the underlying tissues from mechanical damage, pathogens, and dehydration.
5. b - The extreme fatigue and muscle cramps experienced by the marathon runner are primarily due to a lack of oxygen supply to the skeletal muscle tissue. This leads to the accumulation of lactic acid and other metabolites, causing muscle fatigue and discomfort. Skeletal muscle tissue is responsible for voluntary movements and is highly active during activities like running.

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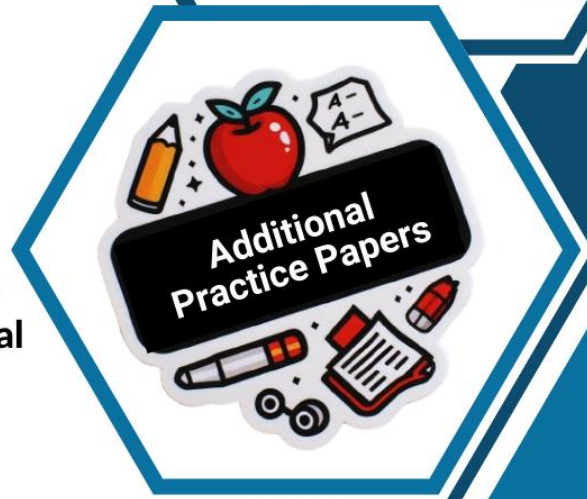
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