Name _____ Section_____

Cells Exam - Practice Test

Part I. True False-Corrective (3 pts. Each)

DIRECTIONS: In the space to the left, write if the statement is true or false. If it is false, you need to write the correct word that would make the statement true. Look at the example below:

___F - Nucleus__ The control center of the cell is the **lysosome**.

****For this section, many answers may be correct. I am only offering one option.**

_____FALSE_____ 1) The cell organelle that transports materials within the inside of the cell is called the ~~**Lysosome**~~ **Endoplasmic Reticulum.**

_____FALSE_____ 2) Glucose is broken down to release energy during a process called ~~**photosynthesis**~~ **Respiration.**

_____TRUE _____ 3) **Heterotrophs** would be organisms such as fungi, humans, and other mammals.

_____FALSE_____ 4) The process of using proteins as a passageway through the cell membrane to move molecules from a low concentration to a high concentration is called ~~**diffusion**~~ **protein pumps.**

_____FALSE_____ 5) **Osmosis** is a process of moving **water** across a membrane that **does not** require the use of energy.

_____FALSE_____ 6) Anaerobic respiration occurs in the ~~**chloroplast**~~ **cytoplasm.**

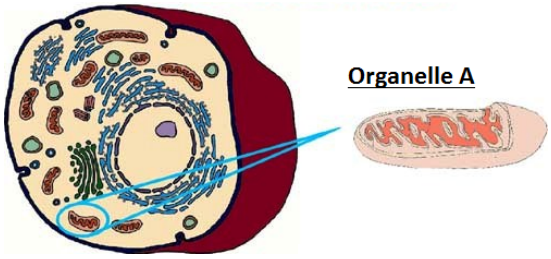
_____TRUE_____ 7) When a molecule of oxygen is moved from a lower concentration outside the cell to a higher concentration inside the cell it is a form of **active transport.**

Part II. Multiple Choice (3 pts. Each)

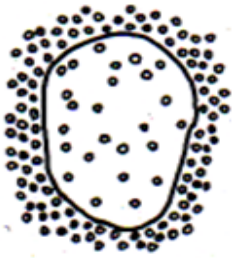
DIRECTIONS: Circle the answer choice that best completes each statement and write the letter into the blank space.

9) The cell process that would take place in the organelle pictured to the right would be _____.

a) Photosynthesis
b) Osmoregulation
c) Aerobic Respiration
d) Active Transport



10) In the picture to the right, which of the following processes could be used to get one of the molecules inside the cell to move to the outside of the cell?



a) Diffusion
b) Osmosis
c) Protein Pumps
d) Passive transport
e) None of the above.

11) When a bodybuilder lifts a heavy weight continuously, he feels a burning in his muscles. This is a result of the build up of a waste product during the process of _____.
a) Photosynthesis
b) Cell Regeneration
c) Aerobic Respiration
d) Anaerobic Respiration

12) The cell organelle that is located inside the nucleus and is the site of ribosome production is the _____.
a) nucleolus
b) rough endoplasmic reticulum
c) mitochondria
d) chromosomes

13) One substance that is a result of the process of aerobic respiration is _____.
a) Oxygen
b) Glucose
c) CO_2
d) Lactic Acid
e) ATP

14) An underwater plant would produce more oxygen bubbles if there was an increase in which of the following substances?
a) Lactic Acid
b) Glucose
c) CO_2
d) ATP

Part III. Short Answer

- Explain why you would find more mitochondria in a muscle cell than in a skin cell. **The Mitochondria is the source of energy in a cell, and muscle movement/contraction requires ATP. As a result, muscle cells contain a higher abundance of mitochondria than other cells.q**

- Some scientists feel that dinosaurs became extinct when a cloud of dust and gas kept sunlight from penetrating the atmosphere for a long period of time. Based on what you know the photosynthesis, is this a reasonable conclusion? If so, explain how a lack of sunlight might have affected the

dinosaurs despite them being heterotrophs.

Even though Dinosaurs were an animal (heterotroph), all organisms have a heavy reliance on photosynthesis because of the Carbon Cycle. Plants rely on the sun directly to go through photosynthesis to create their own food (glucose), but the glucose in plants is also the source of food for all organisms. Animals eat the plants, so if the plants were to die, the animals would lose their food source and die shortly after. In addition, plants help keep the Carbon Dioxide concentration in the air at a reasonable concentration by using it as a material for photosynthesis. Without them, we would not be provided with Oxygen and have our Carbon Dioxide kept in check.

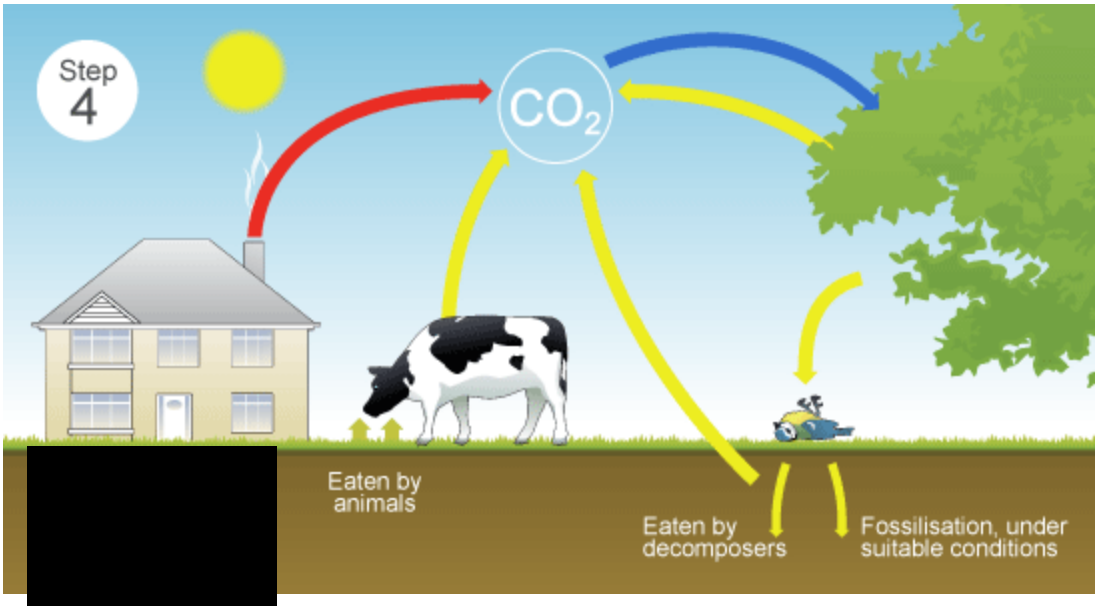
- Why do we breathe so heavily when we exercise? Use the equations for Respiration to support your answer.

The Law of Conservation of Matter states that matter can not be created or destroyed; it can only change forms. So, in order to create more ATP to fuel our muscles during exercise (a product in the equation), then you must take in more materials. Oxygen is one of these necessary materials. Your body increases your heart rate so that you breathe in and out faster - in turn, providing you with more oxygen. Also, when the ATP is created, more Carbon Dioxide is produced as a by-product. This also needs to be excreted faster, which is also why we breathe heavier.

Part IV. Application Questions

Photosynthesis and Respiration

DIRECTIONS: Look at the picture of the Carbon Cycle below and answer the questions below it.



- The black box on the bottom left is blocking the Legend that labels the yellow, blue, and red arrows. Match the processes below with the correct arrow color.

Processes

Red arrow ---> Combustion (burning of Fossil Fuels)

Yellow arrow ---> **Respiration**

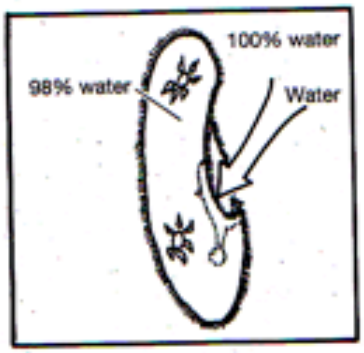
Blue arrow ---> **Photosynthesis**

Passive and Active Transport

DIRECTIONS: Look at the pictures below, and pay close attention to the arrows/concentrations and what molecule is moving across the membrane or through the air. Use the word box to properly label the pictures.

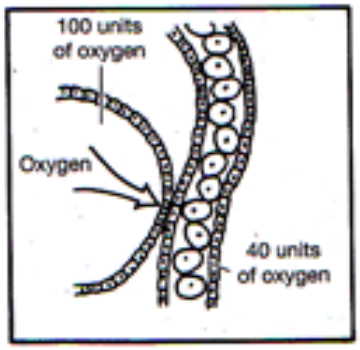
Answers

#1 and # 6 - Osmosis
#2 and #3 - Diffusion
#4 - Protein Pumps
#5 - Phagocytosis

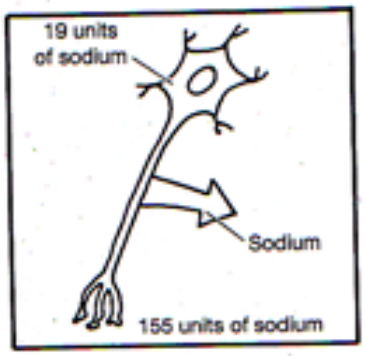


1. Fresh water moves into a single-celled organism.

2. You smell the delicious odor of baking cookies even before you enter the kitchen.

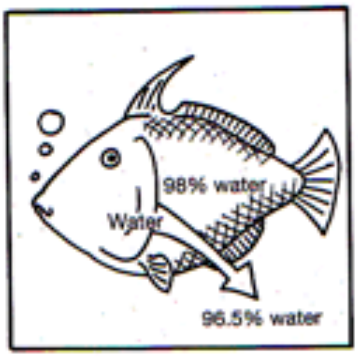


3. Oxygen moves from the lungs into the bloodstream.



4. Sodium (Na^+) is pumped out of a nerve cell.

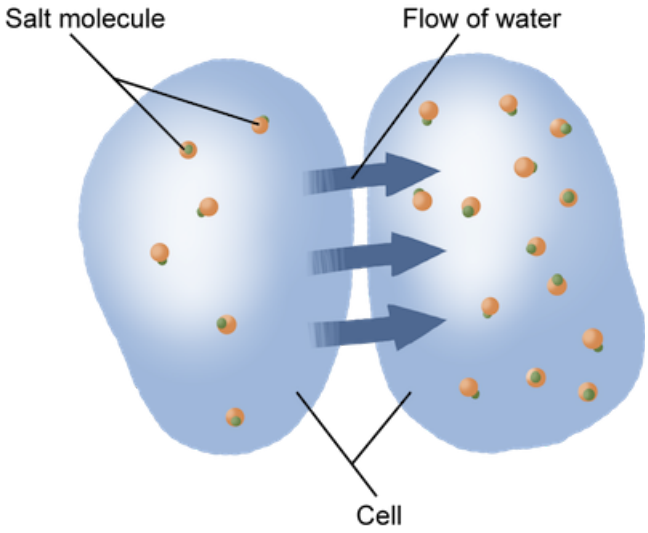
5. A bloblike, one-celled ameba surrounds a particle of food.



6. Water moves out of the body cells of a salt-water fish and into the environment.

Movement of Water

DIRECTIONS: Look at the cartoon below, and answer the questions.



The picture to the right shows two cells that are side by side. Explain why water will flow in the direction pictured. Use the following words in your answer: osmosis, solute

Water is too small to move across a cell membrane, and it flows freely. So, as a result, if a Cell wants to regulate the movement of water, it can pump solutes (salt and other ions) in a direction across the membrane. Increasing the solute concentration will decrease the water concentration, and as a result, the water will flow in the direction of higher solutes.