

Exam 2 Review Packet

Life Processes

Cell Theory

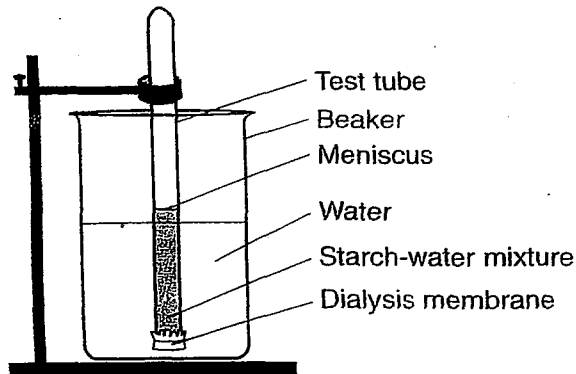
Cell Structure

Diffusion (state lab)

Transport Across Membrane

Taxonomy

19. A laboratory setup for a demonstration is represented in the diagram below.



Describe how an indicator can be used to determine if starch diffuses through the membrane into the beaker. In your answer, be sure to include:

- the procedure used [1]
- how to interpret the results [1]



QUESTIONS

1. The tendency of an organism to maintain a stable internal environment is called (1) homeostasis (2) cell theory (3) reproduction (4) synthesis
2. The energy available for use by the cell is obtained from the life function of (1) reproduction (2) respiration (3) transport (4) synthesis
3. The chemical process by which complex molecules of protein are made from simple molecules is called (1) regulation (2) respiration (3) synthesis (4) excretion
4. Which life function includes the absorption and circulation of essential substances throughout an organism? (1) transport (2) excretion (3) ingestion (4) nutrition
5. Which term includes all of the chemical activities carried on by an organism? (1) regulation (2) metabolism (3) digestion (4) respiration
6. Which life activity is *not* required for the survival of an individual organism? (1) nutrition (2) respiration (3) reproduction (4) synthesis
7. In an ameba, materials are taken from its environment and then moved throughout its cytoplasm. These processes are known as (1) absorption and circulation (2) food processing and energy release (3) energy release and synthesis (4) coordination and regulation
8. In an organism, the coordination of the activities that maintain homeostasis in a constantly changing environment is a process known as (1) digestion (2) regulation (3) synthesis (4) respiration
9. Which life function provides substances that may be used by an organism for its growth and for the repair of its tissues? (1) excretion (2) reproduction (3) nutrition (4) regulation
10. Why are both bacteria and humans considered to be organisms? Write a brief paragraph explaining why scientists have difficulty including viruses in the category of organisms.

QUESTIONS

1. The term "semipermeable" is used in reference to the (1) nucleolus (2) cell wall (3) cytoplasm (4) cell membrane
 2. The canals that connect the cell membrane with the nuclear membrane are the (1) ribosomes (2) lysosomes (3) endoplasmic reticulum (4) nuclei
 3. The part of a cell that is in most direct contact with the environment is the (1) nucleus (2) cell membrane (3) mitochondrion (4) centrioles
 4. Plant cell organelles that contain photosynthetic pigments are (1) chloroplasts (2) centrioles (3) chromosomes (4) cell walls
 5. A student could tell the difference between onion skin cells and cheek cells because the onion skin cells have a (1) cell membrane (2) nucleus (3) centriole (4) cell wall
 6. The sites of protein synthesis in the cytoplasm are the (1) ribosomes (2) lysosomes (3) nuclei (4) centrioles
 7. The watery environment in which most life activities of a cell take place is the (1) cell membrane (2) chloroplast (3) cytoplasm (4) vacuole
 8. Intracellular transport of materials is most closely associated with which cell organelle? (1) cell membrane (2) cell wall (3) ribosome (4) endoplasmic reticulum
 9. Centrioles are normally present in the (1) cytoplasm of onion cells (2) cytoplasm of cheek cells (3) nuclei of liver cells (4) nuclei of bean cells
 10. Which organelle contains hereditary material and controls most cell activities? (1) nucleus (2) cell membrane (3) vacuole (4) endoplasmic reticulum
 11. Centrioles are cell structures involved primarily in (1) cell division (2) storage of fats (3) enzyme production (4) cellular respiration
 12. The cell organelles that are the sites of aerobic cellular respiration in both plant and animal cells are (1) mitochondria (2) centrioles (3) chloroplasts (4) nuclei
 13. An increase in the concentration of ATP in a muscle cell is a direct result of which life function? (1) respiration (2) reproduction (3) digestion (4) excretion
 14. An organelle found within the cell nucleus is a (1) centriole (2) nucleolus (3) chloroplast (4) mitochondrion
 15. An organelle that is present in the cells of a mouse but *not* present in the cells of a bean plant is a (1) cell wall (2) chloroplast (3) cell membrane (4) centriole
 16. A nonliving cell structure is a (1) cell membrane (2) nucleus (3) cell wall (4) Golgi complex
- ~~X~~ Research how the study of human cells has helped scientists learn how to fight diseases.

Chapter

A View of the Cell, *continued*

Reinforcement and Study Guide

Section 7.3 Eukaryotic Cell Structure

In your textbook, read about cellular boundaries; nucleus and cell control; assembly, transport, and storage in the cell; and energy transformers.

Complete the table by writing the name of the cell part beside its structure/function. A cell part may be used more than once.

Structure/Function	Cell Part
1. A membrane-bound, fluid-filled sac	
2. Closely stacked, flattened membrane sacs	
3. The sites of protein synthesis	
4. A folded membrane that forms a network of interconnected compartments in the cytoplasm	
5. The clear fluid inside the cell	
6. Organelle that manages cell functions in eukaryotic cell	
7. Contains chlorophyll, a green pigment that traps energy from sunlight and gives plants their green color	
8. Digest excess or worn-out cell part, food particles, and invading viruses or bacteria	
9. Small bumps located on the endoplasmic reticulum	
10. Provides temporary storage of food, enzymes, and waste products	
11. Firm, protective structure that gives the cell its shape in plants, fungi, most bacteria, and some protists	
12. Produce a usable form of energy for the cell	
13. Modifies proteins chemically, then repackages them	
14. Contains inner membranes arranged in stacks of membranous sacs called <u>grana</u> (note on test)	Chloroplast
15. Plant organelles that store starches or lipids or that contain pigments (note on test)	—

Chapter

Cellular Transport and the Cell Cycle

Reinforcement and Study Guide

Section 8.1 Cellular Transport

In your textbook, read about osmosis: diffusion of water.

Complete the table by checking the correct column for each statement.

Statement	Isotonic Solution	Hypotonic Solution	Hypertonic Solution
1. Causes a cell to swell			
2. Doesn't change the shape of a cell			
3. Causes osmosis			
4. Causes a cell to shrink			

In your textbook, read about passive transport and active transport.

For each item in Column A, write the letter of the matching item in Column B.

Column A

Column B

- | | | |
|-------|--|--------------------------|
| _____ | 5. Transport protein that provides a tubelike opening in the plasma membrane through which particles can diffuse | a. energy |
| _____ | 6. Is used during active transport but not passive transport | b. facilitated diffusion |
| _____ | 7. Process by which a cell takes in material by forming a vacuole around it | c. endocytosis |
| _____ | 8. Particle movement from an area of higher concentration to an area of lower concentration | d. passive transport |
| _____ | 9. Process by which a cell expels wastes from a vacuole | e. active transport |
| _____ | 10. A form of passive transport that uses transport proteins | f. exocytosis |
| _____ | 11. Particle movement from an area of lower concentration to an area of higher concentration | g. carrier protein |
| _____ | 12. Transport protein that changes shape when a particle binds with it | h. channel protein |

Name:

Practice Questions Cells, Microscopes, Diffusion Lab

Date:

1. Organelles carry out specific processes involving chemical reactions. In the chart below, identify two organelles and, for each, identify a process involving chemical reactions that occurs there. Describe *one* specific way each process identified is important to the functioning of the organism.

Organelle	Process Involving Chemical Reactions that Occur in the Organelle	How the Process is Important to the Functioning of the Organism
(1) _____ _____	_____ _____ _____	_____ _____ _____
(2) _____ _____	_____ _____ _____	_____ _____ _____

2. State *one* reason that most foods must be digested before they can enter a cell.

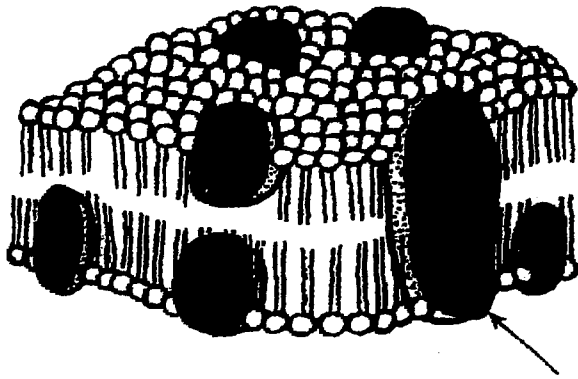
3. A red onion cell has undergone a change, as represented in the diagram below.



This change is most likely due to the cell being placed in

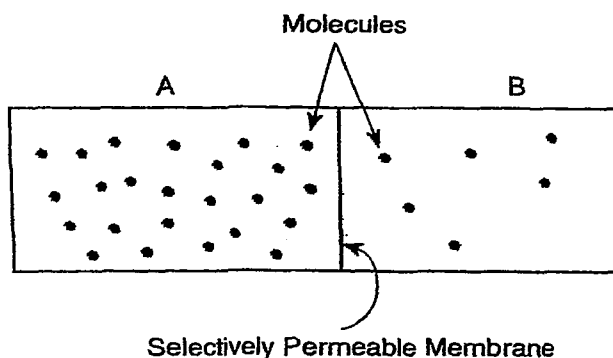
- (1) distilled water (3) salt water
(2) light (4) darkness

1. The diagram below represents the fluid-mosaic model of a cell membrane.



The arrow points to a component of the membrane that is best described as a

- (1) sugar floating in lipids
 - (2) protein floating in lipids
 - (3) lipid floating in proteins
 - (4) lipid floating in sugars
2. Which process utilizes cellular energy to move particles through a membrane?
- (1) osmosis
 - (2) passive diffusion
 - (3) active transport
 - (4) transpiration
3. The diagram below shows the same type of molecules in area A and area B. With the passage of time, some molecules move from area A to area B.

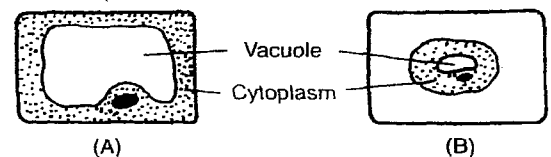


- This movement is the result of the process of
- (1) phagocytosis
 - (2) pinocytosis
 - (3) diffusion
 - (4) cyclosis

Questions

Multiple Choice

4. Which process would describe the movement of sugar molecules through a membrane from a region of higher concentration to a region of lower concentration? (1) osmosis (2) cyclosis (3) passive transport (4) active transport
5. In the human body, the potassium ion can pass easily through cell membranes, yet the potassium ion concentration is higher inside many cells than it is outside these cells. This condition is mainly the result of (1) passive transport (2) active transport (3) osmosis (4) pinocytosis
6. Chemical analysis indicates that the cell membrane is composed mainly of (1) proteins and starch (2) proteins and cellulose (3) lipids and starch (4) lipids and proteins
7. The flow of materials through the membrane of a cell against the concentration gradient is known as (1) passive transport (2) active transport (3) osmosis (4) pinocytosis
8. A biologist observed a plant cell in a drop of water and illustrated it as in diagram A. He added a 10% salt solution to the slide, observed the cell, and illustrated it as in diagram B. The change in appearance of the cell resulted from more (1) salt flowing out of the cell than into the cell (2) salt flowing into the cell than out of the cell (3) water flowing into the cell than out of the cell (4) water flowing out of the cell than into the cell



Exam 2 Review Packet Key

Page 1: 19) Add starch indicator/iodine to the water in the beaker. If the water in the beaker turns color/turns blue-black, then starch diffused through the membrane.

Page 2: 1) 1 2) 2 3) 3 4) 1 5) 2 6) 3 7) 1 8) 2 9) 3 10) varies
1) 4 2) 3 3) 2 4) 1 5) 4 6) 1 7) 3 8) 4 9) 2 10) 1
11) 1 12) 1 13) 1 14) 2 15) 4 16) 3 → not on test

Page 3:

1) Vacuole	9) Ribosomes
2) GOLGI	10) Vacuoles
3) Ribosomes	11) Cell Wall
4) ER	12) Mitochondria (ATP!!)
5) Cytoplasm	13) GOLGI
6) Nucleus	14) Chloroplast
7) Chloroplast	15) —
8) <u>Lysosome</u>	

Page 4:

1) Hypotonic	7) C (form of Active Transport)
2) Isotonic	8) D (aka "DIFFUSION")
3) Hypo <u>&</u> Hyper	9) F (form of Active Transport)
4) Hypertonic	10) B (Glucose moves via this)
5) H H	11) E
6) A	12) G (you do <u>NOT</u> have to distinguish b/w G + H)

Page 5:

- 1) Mitochondria → Respiration → provides useable energy for the cell (varies)
- 2) To be made small enough to cross the cell membrane
- 3) 3

Page 6: 1) 2 2) 3 3) 3 4) 3 5) 2 6) 4 7) 7 8) 4

