

SBI3C - UNIT #1: Cellular Functions Review

UNIT TEST DATE: _____

Below is a sampling of the types of questions you will see on the test. At-home Review is highly recommended! Make some Flashcards!

Multiple Choice:

- Glucose
 - is a disaccharide
 - is used by cells as a source of energy
 - is a triglyceride
 - contains C, H, O, and N atoms
- Which of the following would be found in a **plant cell**, but not in an animal cell?
 - cell membrane
 - chloroplast
 - vacuole
 - endoplasmic reticulum
- In **active transport**:
 - a source of energy (ATP) is not needed
 - water molecules move into and out of a cell by simple diffusion
 - membrane proteins use energy to help transport larger molecules into the cell
 - molecules move from an area of high concentration to an area of low concentration.
- A student looks through a microscope. The eyepiece lens has a magnification of 10X. The objective lens she chooses has a magnification of 40X. What is the **total magnification** of the image she sees?
 - 40X
 - 50X
 - 10X
 - 400X
- Osmosis**
 - uses up cellular energy
 - is the simple diffusion of water molecules through a membrane
 - uses membrane proteins to move large molecules across the cell membrane
 - moves molecules from an area of low concentration to an area of high concentration.
- Which of the following is not a carbohydrate?
 - glucose
 - lactase
 - lactose
 - galactose
- Which of the following lists describes the **main components of the cell membrane**, according to the fluid mosaic model studied in class?
 - phospholipids and steroids
 - phospholipids, enzymes, and lipids
 - phospholipids and proteins
 - carbohydrates and proteins
- The inside of a cell contains a **higher concentration of water** than its surroundings. What happens as a result?
 - water moves into the cell by osmosis
 - water moves into the cell by active transport
 - water moves out of the cell by active transport
 - water moves out of the cell by osmosis
- Aerobic cellular respiration**
 - produces glucose
 - occurs in chloroplasts
 - occurs in the mitochondria
 - produces oxygen
- Facilitated diffusion**
 - uses energy in the form of ATP
 - is the movement of water out of the cell
 - is a form of active transport
 - uses membrane proteins to move substances into the cell

11. Enzyme-catalyzed reactions:
- are not affected by pH
 - slow down as substrate concentration increases
 - work best at a pH of 7
 - are not affected by temperature
12. Which of the following may contribute to **logged arteries** and an increased risk of heart attack?
- carbohydrates
 - proteins
 - saturated fats
 - unsaturated fats
13. The inside of a cell contains a **lower concentration of water** than its surroundings. What happens as a result?
- water moves into the cell by osmosis
 - water moves into the cell by active transport
 - water moves out of the cell by active transport
 - water moves out of the cell by osmosis
14. Which of the following is the correct overall equation for cellular respiration?
- $C_6H_{12}O_6 + 6 O_2 \rightleftharpoons 6 CO_2 + 6 O_2 + 36 ATP$
 - $2 C_3H_6O_3 + 6 O_2 \rightleftharpoons 6 CO_2 + 6 O_2 + 34 ATP$
 - $C_6H_{12}O_6 \rightleftharpoons 2 C_3H_6O_3$
 - $C_6H_{12}O_6 \rightleftharpoons 2 C_2H_5OH + 2 CO_2$
15. The molecule that causes muscle stiffness, soreness, and fatigue is
- glucose
 - ethanol
 - lactic acid
 - carbon dioxide
16. What is one **important similarity** between **diffusion** and **facilitated diffusion**?
17. What is the one **important difference** between **diffusion** and **facilitated diffusion**?
18. What is one **important difference** between **facilitated diffusion** and **active transport**?
19. Indicate whether each of the following statements is true or false.
- _____ Anaerobic cellular respiration does not use oxygen and produces large amounts of ATP.
 - _____ Blood serum is normally hypotonic with respect to blood cell cytoplasm.
 - _____ Photosynthesis takes place in the mitochondria of plant cells.
 - _____ The nucleus is sometimes called the powerhouse of the cell.
 - _____ Aerobic cellular respiration produces 36 ATP.
 - _____ Animals carry out photosynthesis and cellular respiration because they contain chloroplasts and mitochondria.
 - _____ The lysosomes are the organelles responsible for the production of proteins in the cell.
 - _____ Cell membranes are impermeable; they only let certain substances through.
 - _____ The smell of an air freshener throughout the room is an example of osmosis.
20. Why would it not be a wise decision to irrigate crops with sea water?
21. Describe the differences between saturated and unsaturated fats.
22. Calculate the estimated diameter of an animal cell if on low-power magnification (40X) the field of view is 3500 um and when viewed under high-power magnification (400X) approximately 7 cells fit across the field of view.

Additional Review Questions in your Textbook

Chap.2 Review Q's pg.89 #1 – 15

pg.90 #16-19, 26,27, 29, 39, 40