Unit 3 Advanced Biology Test Review
Name: Answer Key **Date:** _____ **Hour:** _____

1. Who is Robert Hooke and what is he given credit for doing? Inlcdes, he used a microscope to examine cork cells. He named cells
2. What significance does Anton Van Leeuwenhoek have? He was the first to view a living organism using a simple handheld microscope.
3. Which scientists are responsible for creating the cell theory? Schleiden and Schwann
4. What does the cell theory state?
   a. All living things are made of cells.
   b. Cells are the basic unit of structure and function in an organism.
   c. Cells come from the reproduction of existing cells.
5. What is a cell? Smallest unit that can carry out all life processes
6. Write out the complete organization levels of life from atoms to organization.
   Atoms → Molecules → organelles → cells → tissues → organs → organ systems → organism
7. What are the differences between prokaryotic and eukaryotic cells? Prokaryotes → no membrane bound nucleus nor membrane bound organelles
8. What is the function of the plasma membrane (cell membrane)? Acts as a barrier between the inside and the outside of the cell
9. In what type of cell will you find a plasma membrane? ALL cells
10. If a specific cell is in an active part of an organism, what energy creating organelle might it have more of? Mitochondria
11. Write out the function for the following organelles and know what type of cell it is found in. In addition, be able to identify it in a cell.
    a. Nucleus: Central portion of the cell that contains DNA and controls cell functions; eukaryotic cells only
    b. Nuclear membrane: boundary between cytoplasm and nucleus; eukaryotic cells only
    c. Nucleolus: Site where DNA is concentrated when it is in the process of making ribosomes; eukaryotic cells only
    d. Endoplasmic Reticulum: System of double membranes, transports materials through the cell; eukaryotic cells only
    e. Mitochondria: Site of cellular respiration; changes glucose to ATP for energy; eukaryotic cells only
    f. Vacuole: Fluid filled storage site; eukaryotic cells only
    g. Lysosome: Rid the cell of wastes, digests unneeded materials; eukaryotic cells only
    h. Golgi Apparatus (body): packages proteins for export from the cell; eukaryotic cells only
    i. Centrioles: composed of two short microtubules at right angles to each other in cell division; animal cells only
    j. Chloroplasts: Site of photosynthesis and contains

chlorophyll; plant cells only

k. Cell Wall: Rigid structure surrounding and supporting the cell; plant cells only

l. Central Vacuole: large, fluid-filled organelle that stores water, enzymes, wastes; plant cells only

12. Name and define the three types of structures found on cells to help with cellular motility.
    a. Cilia - short, hairlike projections that line the cell and are packed in tight rows
    b. Flagella - long, hairlike structure that grows out of a cell and enables the cell to move
    c. Pseudopodia - a retractable, temporary extension that functions in food ingestion and movement
13. What is diffusion? Movement of particles from areas of high concentration to areas of low concentration
14. Is there an energy requirement with diffusion? No
15. Once equilibrium is reached the particles will continue to move, but diffusion stops because the concentration is the same throughout.
16. What is facilitated diffusion? Transport of substances through a cell membrane along a concentration gradient with channel or carrier proteins
17. Give an example of a molecule that enters the cell via facilitated diffusion. Glucose
18. Define osmosis. Diffusion of water molecules from areas of high H_2O concentration to areas of low H_2O concentration
19. Define the three types of environments a cell can be in. Then explain how water will move in each of those conditions.
    a. Isotonic: Solution outside the cell contains the SAME concentration of solutes and water as inside the cell
        i. Water moves: cell will NEITHER gain nor lose water
    b. Hypotonic: Solution outside the cell has a LOWER concentration of solutes and water than inside
        i. Water moves: into the cell
    c. Hypertonic: Solution outside has HIGHER concentration of solutes and LOWER concentration of water
        i. Water moves: OUT of the cell
20. How is active transport different from passive transport (simple diffusion/facilitated diffusion)? Active Transport requires the use of energy and moves against a concentration gradient
21. What is exocytosis? Substance is released from the cell through a vesicle (ex: wastes, toxins, proteins)
22. What is phagocytosis? cell engulfing large particles or whole cells, either as defense or food; used to destroy bacteria
23. What is pinocytosis? cell takes in extracellular fluids
24. Endocytosis, phagocytosis, pinocytosis, and exocytosis are all types of: Active Transport

Be able to answer questions on proper microscope technique.
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Anything from work or notes is fair game to be on the test.