CELL THEORY AND PLANT AND ANIMAL CELLS

1) Define the following:
   a) organism – any living thing capable of response to stimuli; can be unicellular or multicellular
   b) cell – simplest unit that can carry out all life processes
   c) organelle – general term for cell 'organs' or structures
2) Summarize cell theory in your own words. Answers will vary.
3) How does the nucleus coordinate cell activities? Nucleus acts like the brain. It holds all genetic information that controls the cell's activities in the form of DNA.
4) When you exercise, you breathe harder and faster. Using your knowledge of organelles, explain why this happens. Answers will vary. Possible explanation: There is an increase in heart rate meaning the blood has to be pumped out of the heart at a faster rate so fresh oxygen can be delivered to tissues.
5) Not all plant cells contain chloroplasts. What is the most likely reason for this? Chloroplasts conduct photosynthesis. Not all plants conduct photosynthesis – only green plants conduct photosynthesis.
6) Plant cells are surrounded by a cell wall. What is the function of this structure? It provides support.
7) Plant cells can make their own "food", glucose. Why do plant cells have mitochondria? Mitochondria are the power house of the cell. They turn food into ATP (energy) to be used by the cell.
8) **Make a chart, summarizing the structure and function of all the cell organelles*****

   ORGANELLE- general term for cell "organs" or structures

   CYTOPLASM- mostly H_2O, gives cell it's rigidity ("fills it up"), site of chemical reactions

   CELL MEMBRANE- flexible, double layer "container" of the cell, holds cytoplasm and all organelles, allows certain substances to automatically travel in and out (SEMI-PERMEABLE, *ex. H_2O yes, proteins no*)

   NUCLEUS- "brain", holds all genetic information that controls the cell's activities in the form of DNA

   MITOCHONDRIA- "power plants", they make energy from glucose available to the cells through chemical reactions (*cellular respiration*), *ex. muscle cells have more than fat-storage cells*

9) **Label plant and animal cell diagrams*****

PROKARYOTES-EUKARYOTES AND CELL DIVISION

1) Are your cells prokaryotic or eukaryotic? Explain. **Humans are eukaryotes because we exist as multicellular organisms. Different organs have different types of cells. Ie: nerve cells, muscle cells, skin cells.**
2) What is the most obvious difference between prokaryotic and eukaryotic cells? **Prokaryotes are small (cannot be seen by the naked eye); eukaryotes are larger and complex beings.**
3) Name three reasons for cell division. **Cell division is important so organisms can be multicellular, is required for repair from damage, and is needed in reproduction.**
4) A cleaning product claims to kill "99.9% of all bacteria". Will a cleaned surface stay bacteria-free forever? Explain your answer. **Usually, a cleaned surface will not stay bacteria-free forever. 0.1% of bacteria is still not killed. These bacteria will reproduce over time. Other bacteria may also migrate to this surface after the product has been applied.**
5) List three differences between asexual and sexual reproduction. **One parent, two parents; genetically identical, genetically different; undergo mitosis, undergo mitosis and meiosis.**
6) Why do cells divide instead of just getting bigger, as an organism grows? **Cells have a lifespan. They need to be continuously replenished. Even if they get bigger, they will eventually die. Organelles would also be too far away from each other to work effectively.**
7) A minor wound heals over time. Explain how this happens. **Answers will vary. Specialized cells gather to the site of injury which form a scab. In the meantime, mitosis occurs to replicate cells so damaged cells can be replaced by fresh skin cells.**

MITOSIS

1) Draw cell diagrams to show the 4 phases of mitosis (PMAT)
2) Draw cell diagrams to show the 4 phases of mitosis (PMAT)
3) Draw cell diagrams to show the 4 phases of mitosis (PMAT)

***** Yes, I mean do it 3 times… more the better to memorize it!!!!***
Try to do it from memory only and check each time.