**SEMESTER I EXAM REVIEW**

**INTRODUCTION**

* List and describe the properties of life.
* List and explain the steps in the scientific process.

**STATISTICAL ANALYSIS**

* Study Statistics study guide then go over the following to check yourself.
* What is meant by the following terms?
	+ Mean
	+ Standard deviation,
	+ Range/variablility
* What are error bars use for?
* in which two pairs of groups below can we see an overlap in the standard deviation of data?



1. \_\_\_\_\_\_ and \_\_\_\_\_\_
2. \_\_\_\_\_\_and \_\_\_\_\_\_\_
3. In which group is the mean NOT likely to be significantly different

to the mean of group 3? Why?

* What is quanitative data?
* What is qualitative data?
* What is meant by uncertaintly
* What is statistics?
* What is a collation?
* State whether the following are correlated or causal relationships.
	+ The more light the more photosynthesis in the plants.
	+ SAT scores and higher achievement
	+ The less oxygen to a cell the less cell respiration.
	+ Years in prison and education

BIOCHEMISTRY

* Study the Biochemistry study guides (2 of them) then check yourself.
* Atoms are composed of
* Protons, electrons and neutrons have a charge of
* Element is
* Matter is compose of
* Polar molecules are
* Ionic bonds form when
* Covalent bonds form when
* Water is a polar molecule because
* Organic molecules are
* Organic molecules can be classified into four main types. What are they?
* Polysaccharides are
* Amino acids are found in
* Examples of lipids are
* Identify the following:

 

* Animal store glucose in the form of
* Two types of nucleic acids are
* Hydrogen bonding is
* Cohesion occurs because
* State the effects that occur for each of the following statements.
	+ Organisms resist temperature changes, although they give off heat due to chemical reactions.
	+ A water strider can walk across the surface of a small pond.
	+ Lakes don’t freeze solid in winter, despite low temperatures.
	+ The pH of water remains exactly neutral.
	+ Water can mix with other substances easily.
* Why does ice float in liquid water?
* Summarize dehydration reactions.
* Summarize hydrolysis reactions.
* What is a monosaccharide, disaccharide and polysaccharide and give examples?
* What is a lipid and give examples?
* What is the difference between a saturated and unsaturated fat?
* Are lipids soluble in water?
* What is a triglyceride?
* Two amino acids bonded together form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_bond.
* Which four elements make up approximately 96% of living matter?

**CELLS**

* Study Cell study guides (2 of them) then check yourself.
* State the cell theory.
* How did the following influence the belief in the cell theory?
	+ Hooke
	+ Schleiden
	+ Schawann
	+ Pasteur
	+ Light microscope
	+ Electron microscope
	+ Fleming
* What is the magnification of the image?
* State advantages of maximizing the surface area: volume ratio in a cell?
* Two things a large cell might do to increase its surface area: volume ratio is
* State the 6 functions of life.
* State the difference between eukaryote and prokaryote.
* What is an organelle?
* Identify the following structures and functions in an animal and plant cell.
	+ Cell membrane (plasma membrane)
	+ Cell wall
	+ Nucleus
	+ Chromosomes
	+ Ribosomes
	+ Golgi apparatus
	+ Smooth and rough endoplasmic reticulum
	+ Vacuole
	+ Cytoplasm
	+ Lysosomes
	+ Chloroplasts
	+ mitochondria
* Flagella are
* Cilia are
* Describe a phospholipid
* Distinguish between active transport and passive transport.
* Describe the types of passive transport.
	+ Diffusion
	+ Facilitated diffusion
	+ Osmosis-
	+ Understand what happens when a cell is placed in a hypertonic, hypotonic and isotonic solution.
* Describe the types of active transport.
	+ Bulk transport
		- Endocytosis
		- Exocytosis
			* Pinocytosis
			* Phagocytosis
* What is a concentration gradient?
* Describe the sodium-potassium pump.

**CELL DIVISION**

* Study the Cell division study guide and worksheets then check yourself.
* Describe the phases of mitosis –include interphase and cytokinesis.
* Identify a sketch of the phases of mitosis.
	+ How many cells at the end of mitosis? How many chromosomes in those cells?
	+ What are the cell called at the end of mitosis?
	+ What happens after mitosis?
* Describe the phase of meiosis.
* Identify a sketch of the phases of meiosis.
	+ How do Homologous chromosome appear at each phase in meiosis I
	+ How do the chromosomes appear at each phase in meiosis II.
	+ Synapsis is
	+ Crossover is
	+ How many cells at the end of meiosis. How many chromosomes in those cells.
	+ What are the cells called at the end of meiosis?
	+ What happens after meiosis?
* Describe the cell cycle.
* Cancer is
* Describe the types of cancer.
* Stem cells are
* Types of stem cells are
* Stem cells are used for