MIDTERM EXAM REVIEW

Science/Experimental Design: Ch1

1. A team of scientists wanted to test the effects of temperature on the germination rate of pinto beans.
Before looking at the data….

a. Identify the independent and dependent variables.
b. Propose an "If/Then" Hypothesis

They placed three sets of 100 pinto bean seeds in temperature controlled chambers: Chamber A was set at 15^{o} C, chamber B at 20^{o}C, and chamber C at 25^{o}C. Their results are shown in Table 1 below:

Germination Rates of Pinto Beans

Day	% Germination (15^{o} C)	% Germination (20^{o} C)	% Germination (25^{o} C)
0	0	0	0
2	2	10	10
4	10	30	50
6	20	40	80
8	20	60	90
10	35	70	90

c. Next graph the data
d. Compare and contrast the growth rate of pinto beans at the different temperatures and summarize the experimental results.
e. Estimate the percent germination at each temperature for day 7.
f. Estimate the percent germination at day 11.
g. Explain why the percent germination on day 10 at 25^{o} C is not consistent with the rest of the data.

Ecology: Ch 47-1, 47-4, 48

2. Pick your favorite habitat on campus (or Buffalo Creek) and give an example of how primary succession should progress if the habitat were destroyed by a disaster. Give at least 4 plants/organisms in the correct sequence as examples.

3. Using this same habitat, give an example of a 5-level food chain and a 10 level food web. Label all organisms with their trophic level. Construct an energy pyramid out of the food chain, label with the organism and trophic level, and give a numerical example of how energy decreases.

4.Draw a typical population growth curve and label the axes, exponential phase, carrying capacity, steady state.

5. Give a real world example of each ecological relationship and explain. Predation, competition, mutualism, commensalism, parasitism.

6. Using words, sketch out the Carbon Cycle, including as many important factors, sinks/reservoirs, and vocabulary as you can.

Biochemistry: Ch. 3, 4

7. Pick an atom and describe its atomic structure and properties. Include a diagram.

8. Give the photosynthesis equation, balance it and name all reactants and products. Explain in words how a plant carries out the reaction.

9. Pair each macromolecule polymer with its monomer.

Cells: Ch. 5

10. Give examples of different body tissues and hypothesize what organelles would be important in the cells of each (be sure to describe the functions of the organelles involved).

11. Compare and contrast plant cells with animal cells.

12. Compare and contrast prokaryotes with eukaryotes.

13. Give the points of the cell theory.

Mitosis: Ch.8

14. Diagram a cell with 4 different chromosomes going through mitosis. Color each chromosome a different color, keeping the color the same throughout. Also label the nuclear membrane, centrioles, spindle fibers, cytokinesis, chromotin, centromeres.

ExtraCredit: Create a crossword on graph paper with as many vocabulary words as you can (keep spaces between the words.