Bio 201 Lab: Review for Final

Hints for lab final:

This review sheet is mainly a compilation of the weekly 'To Know' lists from labs this quarter. It is not meant to be all encompassing, but if you study the terms on this list and the concepts and calculations associated with them, you should be well prepared for this lab final. I am anticipating 3 stations for the lab final. The rest of the questions will be similar to quiz questions, so review your old quizzes. I will have quiz and worksheet keys available to you.

Molecular models/ Techniques and calculations

Molecules:
→ chirality
→ basic a.a. structure
→ L vs. D a.a. configuration
→ D-Glucose structure, ring and chain
→ Fischer and perspecive projections of both molecules
→ polymers formed by each type of monomer
→ starch vs. cellulose, curved vs. straight
→ naturally occurring configuration (D/L)

Techniques/calculations:
→ dilution factors for serial dilutions
→ pipetting, pipets
→ molarity calculations
→ Metric conversions

Enzyme Lab

→ importance of tertairy structure, active site
→ effects of pH, temp on enzyme activity/ structure
→ terms: substrate/ product

Microscopy

→ Calculations:
-calibrating micrometers
-converting specimen size from ou to metric units
→ Physical appearance of specimens: amoeba, paramecium, *Elodea*, onion, volvox, *Anabena*, *Oscillatoria*
→ Read Lab for next week, Bacterial genetics: Read about Beadle and Tatum's experiment in text book, highly interesting, not too long

Bacterial genetics

→ biosynthetic pathways
→ Beadle and Tatum (p.218-221, Purves et al.)
→ Reasons to dilute bacterial cultures
→ dilution calculations, working backwards (see handout, lab manual)
→ Growth curve, phases of growth (lag, exponential, stationary)
→ Importance of different media

→ Logic behind experiment:
-*E.coli* cannot grow/repro. w/o tryptophan
-each mutant (B, C, E) deficient in only one enzyme in trytophan pathway
-If deficient in e1, means blocked here in pathway, so cannot produce intermediate product = no tryptophan = no growth
-If we supplement *E.coli*'s diet with substance then it can grow b/c stepwise nature of pathway, precursor, intermediates are like building blocks

Diffusion/ Osmosis
→ Terms
1) hyper/hypo/isoosmotic
2) diffusion
3) osmosis
4) semi-permeable membrane
5) Brownian movement
6) plasmolysis
7) turgor pressure
8) lysis
9) crenate

→ Be able to predict water movement in a system, depending on solute concentrations
→ Remember, some of these terms are relative…know what part of system you are referrring to when using terms: hyper/hypo/isoosmotic

DNA gel electrophoresis
→ RFLP
→ How does gel electrophoresis separate DNA?
→ palindromic
→ Homozygous/heterozygous
→ Dominant/recessive
→ How to interpret data (i.e., what you see on the gel)
→ Standard curves

The Hill Reaction
→ Controls?
→ How does DCPIP work?
→ Photosystems
→ What is the Hill Reaction?
→ How does atrazine work?