

BIOLOGY 1 LAB EXAM #3

Here is a study guide for lab exam # 3. What I have been observing in your lab reports during labs 7 -10 is that many students are not paying attention to detail. I know it is getting close to the end of the semester you may want to slow down. Now is not the time to do that. Biology is a course about critical thinking AND remembering details. Even if you did not draw your slides correctly (didn't see what you were supposed to see) you can still do well. Perhaps the slide was presented in one of our pre-lab PowerPoints. Regardless of your method of seeing the slidemake sure you see every slide presented in lab 7,9 and 10 for this exam as any of them may be on it. Understanding what you see is obviously important. Reviewing the material in your text is a good idea. **Email me anytime for any answer to any question.** I am going to put up a "diversity powerpoint 2" which will have one or two micrographs of slides which may have been a bit difficult to see on one lab.

Review for Lab #7

Review PowerPoint on Plant Structure and refer to text , chapter 24 for specifics and, of course study your lab write-up..all questions and answers and sketches/data..

Questions which may guide you:

1. What are the main tissue types in plants?
2. **VASCULAR TISSUE:** What is phloem? What is a sieve tube member and a companion cell? Xylem? Give cells and functions; Identify this tissue in monocots and dicots (roots and stems). What is a tracheid? A pit? *** **Be able to identify micrographs of any of the slides we observed from this lab on vascular tissue. Know the labels!**
3. **GROUND TISSUE:** What is its basic function? Where in the plant do you find it? Name three types of ground tissue. Identify Mesophyll cells in dicot leaf. Distinguish palisade and spongy mesophyll cells in these leaves. Functions?
4. **EPIDERMAL TISSUE:** What is basic function? What are stomata? How are they regulated by guard cells? See these again.
5. **How are plants organized?**
6. **ROOTS:** Areas of growth. The root contains an **APICAL MERISTEM**. What is the basic function: How do dicot and monocot roots differ? What are root specializations called **ROOT NODULES** and **MYCORRHIAE**
7. **SHOOTS:** These are areas of growth. Shoots contain an **APICAL MERISTEM**. Terminal shoots exhibit **APICAL DOMINANCE**. They prevent the lateral buds from spouting.
8. **What is vascular cambium?**
9. **KNOW THE ANATOMY of a EUDICOT BRANCH.**

Supermarket vegetable and spices: This chart was given to class during the following lab following lab #7. If you missed this hand-out you must get the information . Remember that a **modification** means to **ENHANCE the edible portion of the plant**. For example carrots the edible portion is the root so to modify this you would enlarge the root so you have more to eat!

Lab 7B: Review

The retention factor (R_f)- may be defined as the ratio of the distance travelled by the substance to the distance travelled by the solvent. R_f values are usually expressed as a fraction of two decimal places but usually that a percentage figure is used instead. If R_f value of a solution is zero, the solute remains in the stationary phase and thus it is immobile. If R_f value = 1 then the solute has no affinity for the stationary phase and travels with the solvent front. **For example, if a compound travels 2.1 cm and the solvent front travels 2.8 cm, the R_f is 0.75.**

The different pigments move up the chromatography paper at different rates due to difference in molecular size (smaller pigments move faster).

Questions:

1. Be able to determine R_f value when given the solvent distance and pigment distance (chromatography data)
2. What is the electromagnetic spectrum? How is it arranged in order of wavelengths (review this).?
3. How is wavelength and frequency related?
4. What is a spectrophotometer? How does it work?
5. What are you changing through the course of the experiment as you change readings (400-700 nm)? This is your independent variable? What is the dependent variable based on this for each pigment?(absorption)
6. Which wavelengths are reflected ? Which are absorbed?
7. What is the action spectrum of the photosynthetic pigments?

8. Remember what a **controlled variable** is ...something you want to remain constant...like concentration, volume and time.

Review For Lab #9

Review Chapters 20 and 21 in your textbook. (We skipped Viruses)

Review the PowerPoint that corresponds to this lab on this website.

Chapter 20:

(We didn't cover viruses)

Prokaryotes: How do we define these? There are two groups and they make of two out of the three life domains! Archeobacteria and Eubacteria.

Questions:

1. How do we classify prokaryotes in general?
2. How do distinguish the domains Archeobacteria from Eubacteria?
3. Know the differences in Cell Wall composition: peptidoglycan is the cell wall component of Eubacteria. What do Archeobacteria have instead of peptidoglycan?
4. Archeobacteria are EXTREMOPHILES. What does this mean? What is a methanogen? Know the categories of extremophiles. Where would we find these prokaryotes?
5. What is the GRAM STAIN? How does it distinguish different Eubacteria? What does Penicillin have to do with this? What does peptidoglycan have to do with this? **Under the microscope A red-stained, sphere-shaped bacteria is considered a gram negative strain of bacteria. It is not susceptible to Penicillin!**
6. What is Cyanobacteria? Name one that you saw in lab.

***Know the diseases and modes of transmission(lab charts from lab #9)**

Chapter 21:

PROTISTA

Know the classification of Protista: Use your chart at the end of lab #9. To redo this chart correctly. Do the following: SUPER GROUP: ARCHEPLASTIDS

1. What are the Subgroups of each Supergroup? Using example above the subgroup would be: GREEN ALGAE, RED ALGAE, LAND PLANTS and CHAROPHYTES
2. Now, give the major characteristics for each supergroup. Use your text ..go into the chapter. The characteristics for ARCHEPLASTIDS: (Look at pink chart, then go further into chapter where they first start discussing ARCHEPLASTIDS see if they give more detailed characteristics) Use the more detailed version. CHARACTERISTICS: (plastids, unicellular, colonial and multicellular)
3. Examples would be species found for this supergroup would be Chlamydomonas, Volvox, Spirogyra, Gracilaria gelidium and Porphyra. Fill your lab chart in repeating this procedure and study it.
4. Repeat this procedure for the other SUPERGROUPS and study the categories.