

Biology 103

Exam 1 Study Guide

Make sure that you have downloaded the chapter study guides from the website for chapters 42, 43, and 44. Ideally, you should be doing these before coming to class each week. The study guides include summaries of important concepts, common misconceptions to avoid (expect questions that use these misconceptions), and study questions. If you have been keeping up with the chapter study guides, you should be well prepared for this exam. **Chapter study guides and the lab book are what I use as I write test questions!**

The following topics and the topics covered on the practice exam may be on the second exam. Please be aware that these are not the exact questions that will be on the exam. This is a guide to help you focus your studies.

1. What are the differences between monocots and dicots that you can see without a microscope? What differences can you see with a microscope?
2. What are the stages of a plant life cycle in general? Find an illustration of a fern or moss life cycle and label the spores, the sporophyte, the gametes, the gametophytes, the zygote, and where mitosis and meiosis take place.
3. In mosses, which phase is more dominant: the sporophyte or the gametophyte? In flowering plants, which is more prominent: the sporophyte or the gametophyte?
4. Where would you look to find a moss gametophyte? A fern gametophyte? A conifer gametophyte? A flowering plant gametophyte?
5. Review the oat coleoptile experiments that were presented in class. What hormone was discovered as a result of these experiments?
6. List the main characteristics of the following tissues: meristem, epidermis, collenchyma, sclerenchyma, parenchyma, xylem, phloem.
7. Where is vascular tissue found in dicot stems, dicot leaves, and dicot roots?
8. What is the difference between primary and secondary growth?
9. Why do trees have annual rings?
10. What are the characteristics of flowers pollinated by wind compared with those pollinated by insects or birds?
11. What are the characteristics of fruits dispersed by wind, by explosive force, by water, by clinging to animals, or by being eaten by animals?
12. What are the main effects of the following hormones: Auxins, gibberellins, cytokinins, ethylene gas, abscisic acid?
13. From what plant parts are the following structures formed: onion bulb, strawberry runners, white potato, cactus spines? What are some other examples of modified parts? From what plant parts did flower parts evolve?
14. What are mycorrhizal fungi and nitrogen-fixing bacteria, and what roles do they play in plant health?
15. What effects do the following processes have on water movement in plants: osmosis, active transport, capillary action, adhesion and cohesion of water molecules, evaporation?
16. What effects do the following processes have on sugar transport in plants: osmosis, active transport, pressure, bulk flow?
17. What are the meanings of the term “source” and “sink” in the pressure-flow theory?

The exam will take place on Monday, April 28. Please bring a Scan-Tron form, several sharpened pencils, and a good eraser. There will be a multiple choice section and a short-answer section. Please silence your cell phones and your gum during the exam. **You may have one 3x5 card of notes.** Drinks or snacks are okay so long as you are quiet and you clean up after yourself.