

General Biology: Plants and People
Spring 2007

The Final Exam is Tuesday, May 1, 12:30 p.m. - 2:30 p.m., in 252 Science Building.

Review Questions for the Final Exam

My philosophy is that exams should be both a learning experience and an evaluation. Consistent with my view, I give you a set of questions that may appear on the exam before the exam.

The final exam will include about 40 questions and is worth 80 points. About 32 of these questions will be multiple-choice, fill-in-the-blank, or true-false questions. The remaining 8 or so questions will be short-answer style questions, chosen from the questions on this sheet. In addition, most questions on this sheet that are not chosen for short-answer questions will be converted into multiple-choice, fill-in-the-blank, or true-false questions.

Advice

Be concise in answering the questions: a paragraph (1/3 to 1/2 a page) is enough for any of them. Figures or tables may be appropriate for some questions. Note well: being concise does not mean giving a minimal answer. You should --- of course --- give as much relevant detail as possible in a half a page or less.

On the other hand, do not use a "shotgun" approach to answer questions. Use the shotgun approach to answering questions only as a last resort, not a general way of answering questions. In a shotgun approach, you would write anything that seems connected to a concept, and like a shotgun blast spray pellets of information that may not be directly relevant to the question. If you have little idea how to answer a question, this is a decent strategy, because at least some of what you say may earn you some credit. On the other hand, don't shotgun if you think you have a clear idea of how to answer a question, because shotgunning indicates some misunderstanding.

Be prepared to use terminology, but use it correctly. For example, you must understand the meaning of the term *plasmid* to explain the nature of a transgenic crop. It's too easy to veer off course when you don't know the correct term for a concept and instead try to explain it in common language.

Lists, figures or tables may be appropriate for some questions. **Figures must be large and neatly labeled. Tables must have labeled columns and rows.** What is wrong with the following table?

	Leaves	Height	Trait
Banana	Large	Tall	Yellow fruit
Bamboo	Green	Tall	Woody stem
Begonia	Hairy	Tall	Evergreen

I encourage you to discuss these amongst yourselves, use your notes, and the textbook. Please do not ask the instructor to recite the answers. The goal here is learning and critical thinking, not whether you can recite what the teacher says. You may ask the instructor to clarify a question if it is unclear. Be certain that you understand this: the point here is not that you shouldn't ask for help, but instead that you bear the burden of effort here. If you're lost, ask for help.

Questions:

Note that for many of the numbers below, there are two or more questions. Be certain that you answer each question.

1. Describe the preparation of cocoa butter and cocoa powder, from the plant that is responsible to the final product. In your answer, include the habitat of the plant, a description of the plant, the portions of the plants used, and the nutritional (chemical) differences of cocoa butter and cocoa powder.
2. Compare the origin and preparation of black tea and commercial coffee beans, from the plant that is responsible to the final product. In your answer, include a description of the habitat of the plant, a description of the plant, the portions of the plants responsible and the way in which the plant parts are processed.
3. Would you say that the production of coffee has been a benefit or a detriment to our global economy? Defend your answer.
4. On the basis of our investigation of the antimicrobial properties of 12 herbs or spices on three microbes, what general conclusions can be made about the effectiveness of herbs or spices against microbes?
5. Briefly describe four possible sources of error in our data from our investigation of the effectiveness of herbs and spices against microbes. *Be specific.*
6. A proportion of pregnant women experience NVP. What evidence suggests that NVP may be for the purposes of protecting the embryo or fetus from harmful foods eaten by the mother?
7. About 80% of the world's population relies on traditional medicine, heavily dependent on use of medicinal plants and dietary supplements. What are the potential risks of relying on herbal remedies or dietary supplements for your health care? What are the potential benefits?
8. By law, all over-the-counter dietary supplements must bear the following statement: "This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat or prevent a disease." What are the implications of this statement for the consumer?
9. Western medicine, practiced in technological societies, is heavily dependent on prescription drugs or "over-the-counter" pills. Describe the importance of plants for the development of these treatments. Support your answer with four examples of plants that have been used to create treatments for human health.
10. Explain the distinction between a psychoactive drug, stimulant and a narcotic.
11. Describe three fundamental ways that humans are exposed to plant allergens or toxins. Support your answer with two examples for each way --- six total.
12. Certain plants have been the source of controversy because of their beneficial and harmful effects on humans. Discuss the controversy through the past 200 years (or so) of the opium poppy.

13. Certain plants have been the source of controversy because of their beneficial and harmful effects on humans. Discuss the controversy through the past century (or so) of marijuana.
14. Imagine you are a vegetarian whose diet consists entirely of four types of plants. If you could choose any four plants, which four would you choose so that your nutritional needs are met? Defend your answer by briefly describing the principal nutritional benefits of each plant.
15. You have ventured to the dark side of the law, and undertaken the cultivation of marijuana. Briefly describe four actions you could take to ensure that your product contains high concentrations of THC. (Hint: no, we did not discuss this question in class. This question draws from your knowledge from throughout the course.)
16. In a table, list ten distinct benefits of plants in human cultures, and provide one example of a plant that provides each type of benefit. Your answer should reflect the diversity of benefits of plants on humans.
17. In a table, list six harmful effects of plants in human cultures, and provide one example of a plant that provides each type of harmful effect. Your answer should reflect the diversity of harmful effects of plants on humans.

Example of a table to be completed for questions 16 and 17. There are more than 3 types of benefits and harmful effects; the table merely shows you the format to use, not the size.

Benefit (or Harmful Effect)	Example

18. Considering all that is involved in making a successful professional presentation (as with Powerpoint), what do you think are the four most important points you would make to a friend that asks you for advice in giving a presentation?

Expecting a topic to be included in the questions above, but it is not? Keep in mind that it may very well appear in other questions on the exam. These study questions are NOT a comprehensive guide to what could appear on the exam. See the class handouts and your lectures for other concepts that may be included in the exam.