

Biology180 Study Questions

Unit One

*from videos in class or online

**from class handouts

1. Discuss the basic aspects of the acquisition, manipulation, and environmental issues of agriculture.
2. Describe the organizational levels of life from atoms to ecosystems.
3. Discuss plant taxonomy from domains to species. Include the binomial aspect of the scientific name and how it is properly written.
4. Define metabolism, primary compounds and secondary compounds. Include examples.
5. Describe the purpose and overall chemical equation of photosynthesis, and where it occurs in a plant.
6. Discuss the functions of glucose, starch, cellulose, saturated and unsaturated fats, DNA, RNA, and proteins.
7. Discuss the difference between a taproot and fibrous root and list the functions of roots.
8. Recall the functions of the xylem, phloem and vascular cambium in a stem.
9. State the functions of stems.
10. Define tuber, rhizome, corm, and bulb.
11. List the functions of leaves.
12. Define asexual reproduction and its advantages.
13. Define the vegetative propagation techniques of runners, cuttings, and grafting and state some examples of plants that use them.
14. Discuss the function of meiosis.
15. Define polyploidy describe how it occurs.
16. Describe the functions of flowers.
17. Discuss the role of the male and female flower parts
18. Define pollination (self and cross) and how it is achieved.
19. Define fertilization, perfect flowers, imperfect flowers, monocious, and diecious.
20. Discuss the functions of seeds.
21. Discuss seed germination.
22. Discuss the functions of fruit and the difference between fleshy and dry fruit.
23. Describe the hormones involved in fruit ripening. Include examples.
24. Define the following terms regarding genetics. Homologous chromosomes, genes, homozygous, heterozygous, dominant, and recessive
25. Define incomplete dominance and polygenic inheritance. Include examples of both.
26. Briefly describe DNA, transcription to RNA, and translation to proteins.
27. Discuss evolution and natural selection.
28. Discuss artificial selection, selective breeding, hybrids, polyploidy and recombinant DNA. Include examples.
29. Discuss the process of producing genetically modified foods.
30. **Discuss the pros and cons of GMF or GMO.

31. Discuss some of the archaeological evidence of the origins of agriculture.
32. Discuss the theories as to why agriculture became the dominant method of acquiring food from plants.
33. Discuss the five kinds of agriculture.
34. Discuss the green revolution, the increased yield in crops and some of its problems.
35. Discuss food production and poverty.
36. Discuss the environmental issues (biodiversity loss, air pollution, soil erosion and poor water quality) associated with agriculture.
37. *Discuss how the tractor and combine changed farming.
38. *Explain how fertilizers and hybrid seeds influenced productivity, but also increased expenses.
39. Define organic farming.
40. Discuss the fruit and seed anatomy grains and cereals and discuss the functions of the endosperm, germ, bran, and aleurone layer.
41. Compare whole and white flours.
42. Discuss the four areas that grains have been modified by artificial selection.
43. List the uses of barley, rye, triticale, oats, sorghum, and millet.
44. Discuss the history, diseases, and uses of the different types of wheat.
45. Discuss the environmental impacts of growing wheat.
46. Discuss the history and uses of rice.
47. Discuss rice growing in the United States, especially California.
48. Explain the differences between paddy and upland rice and the varieties of rice.
49. Discuss the environmental impacts of growing rice.
50. Discuss the history, uses and types of corn.
51. Discuss the environmental impacts of growing corn.
52. Define and list forage grasses and forage legumes.
53. Define legume, pulses, and nitrogen fixation.
54. Discuss the nutritional aspects of legumes.
55. Discuss the history and uses of lentils, peas, chickpeas, beans, black-eyed peas, soybeans, and peanuts.
56. Discuss the environmental impacts of growing soybeans.