Study Guide for Labs 8-15, Biol-1, revised Fall 2015

Quiz on Lab 8 and intro to Lab 9:
Lab 8, in addition to the intro. items on the previous quiz:
1. be able to complete figure 8-4.
2. describe the appearance of DNA you extracted.
3. describe what makes your DNA unique.
4. interpret results of gel electrophoresis.
5. describe how DNA fingerprinting works (including restriction enzymes, gel electrophoresis).
6. label a diagram summarizing protein synthesis (from DNA to protein).
7. describe the patterns you observed in the irradiated seedlings.
8. distinguish between the consequences of somatic vs. sex cell mutations.
9. answer all the review questions at the end of the lab.

Lab 9 intro.:
1. distinguish between homozygous and heterozygous.
2. distinguish between genotype and phenotype.
3. label a pedigree with P, F1, and F2 generations.

Quiz on Lab 9 and intro to Lab 10:
Lab 9, in addition to the intro. items on the previous quiz:
1. solve for absolute values; for example: |-54| = ?
2. calculate % deviation, given the formula and coin flip data.
3. describe how the number of tests is usually related to the % deviation.
4. calculate the likelihood of particular events; for example, 3 flips of a coin coming up tails, or four boys born in a row, or two sixes rolled on a die.
5. notice the missing or extra chromosomes in a karyotype.
6. distinguish between phenotypic and genotypic ratios.
7. use a Punnett square to show the expected ratios of offspring from a particular cross; for example: Aa x Aa.
8. distinguish between dominant and recessive alleles.
9. describe how a test cross works.
10. use blood types to identify the parents of a baby.
11. complete a Punnett square for a dihybrid cross; for example: AaFf x AaFf.
12. predict outcomes from crosses involving X-linked traits; for example: XnY x XNXn.
13. complete a pedigree with the most likely genotypes.
14. explain which parent’s gamete determines the sex of a child.
15. answer all the review questions at the end of the lab.

Lab 10 intro.:
1. distinguish between “homologous” and “analogous,” when used to refer to body structures.
2. recognize which skeleton we will be investigating first.

Quiz on Lab 10 and intro to Lab 11:
Lab 10, in addition to the intro. items on the previous quiz:
1. label all the bones we discussed on the human skeleton.
2. answer all the worksheet questions for “Part I: The Human Skeleton.”
3. answer worksheet questions #1 – 24 for “Part II: Homologous Structures.”

Lab 11 intro.:
1. contrast biotic and abiotic factors, and give examples of each.
2. contrast microevolution and macroevolution.
3. contrast producers and consumers.
4. be familiar with the Safety and Disposal Alert notifications.

Quiz on Lab 11 and intro. to Lab 12:
Lab 11, in addition to the intro. items on the previous quiz:
1. draw a food web for a given situation.
2. explain what might happen if a particular organism were removed from a food web.
3. fill out and interpret the data tables on page 207-208.
4. describe the results of your natural selection simulation:
   - Which organisms disappeared?
   - What would likely happen to the predators in the future?
   - What might be a wise long-term strategy for the predators?
5. summarize the interactions we learned about in the video, in all three parts. Drawing each food web will be helpful.
6. answer all the review questions at the end of the lab.

Lab 12 intro.:
1. be familiar with the Safety and Disposal Alert notifications.
2. draw a graph of population size vs. time, showing the biotic potential, carrying capacity, and biotic resistance (such as Figure 12-1).
3. define natality, mortality, immigration, and emigration.
4. describe what is meant by “age distribution.”

Quiz on Lab 12 and intro. to Lab 13:
Lab 12, in addition to the intro. items on the previous quiz:
1. draw a general graph of human global population over time.
2. describe the results of our STI transmission activity.
3. answer all the review questions at the end of the lab.

Lab 13 intro.:
1. be familiar with the Safety and Disposal Alert notifications.
2. write a general formula for cellular respiration.
3. describe the function of alveoli and hemoglobin.

Quiz on Lab 13 and intro. to Lab 14:
Lab 13, in addition to the intro. items on the previous quiz:
1. describe how to set up a hematocrit tube.
2. visually distinguish between erythrocytes vs. leukocytes.
3. distinguish between the functions of erythrocytes vs. leukocytes.
4. describe the general appearance of Daphnia.
5. describe how to use a sphygmomanometer.
6. label the heart diagrams in this lab exercise (fig. 13-3 and 13-4).
7. answer all the review questions at the end of the lab.

Lab 14 intro.:
1. be familiar with the Safety and Disposal Alert notifications.
2. distinguish between descriptions of phasic vs. tonic receptors

Quiz on Lab 14 and intro. to Lab 15:
Lab 14, in addition to the intro. items on the previous quiz:
1. label the eye diagram (fig. 14-1).
2. interpret two-point discrimination data (such as from data table I).
3. describe why our eyes each have a blind spot.
4. describe the cause of astigmatism.
5. answer all the review questions at the end of the lab.

Lab 15 intro.:
1. be familiar with the Safety and Disposal Alert notifications.
2. distinguish among descriptions of producers and three types of consumers (primary, secondary, and tertiary).

Material from Lab 15:
Lab 15, in addition to the intro. items on the previous quiz:
1. be able to describe your general conclusions from this lab exercise.
2. answer all the review questions at the end of the lab.