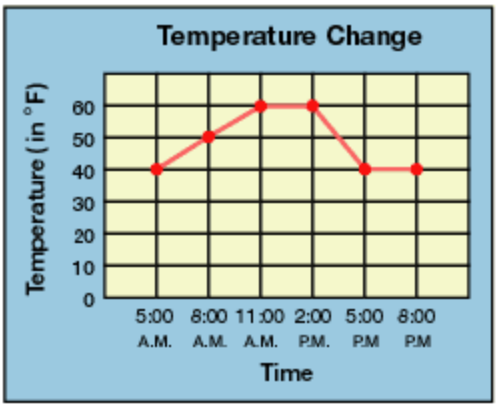
UCS BIOLOGY STUDY GUIDE FOR 1ST SEMESTER MIDTERM EXAM 2016-2017

CHAPTER 1

Use the data table and graph below to answer the 7 questions that follow.

Temperature Change	
Time	**Temperature (°F)**
5:00 A.M.	40°
8:00 A.M.	50°
11:00 A.M.	60°
2:00 P.M.	60°
5:00 P.M.	40°
8:00 P.M.	40°



1. Looking at the data above, what was the questions that was being tested?

2. What would be the main purpose of doing this experiment?

3. What scientific equipment would be needed to collect this data?

4. What conclusion can be drawn based on the data provided (or what claim can be made)?

5. Provide evidence that supports the conclusion (or claim) that you stated in the previous question.

6. What can you infer about the temperature at 7:00 p.m.?

7. Summarize the experiment (what was done, how done, why done, and what was found).

8. Write a scientific question that can be tested and a scientific question that cannot be tested, and explain the difference.

9. Compare and contrast observation, hypothesis, and theory.

10. Explain when peer review would occur and why peer review is important.

11. Explain how scientific knowledge about the natural world can be used in engineering to solve problems.

12. Explain why a scientist needs to stay objective and avoid opinions (as much as possible) when performing a scientific experiment.

13. Define and list the order of structures in living organisms from the simplest to the most complex.

14. Explain what is needed at each of the levels described above to carry out their functions and how their needs are similar.

CHAPTER 3

15. What is the one element that is found in all living things?

16. What are the 4 most common elements in all living things?

17. Where is energy stored in a molecule?

18. How is energy release from a molecule, such as ATP?

19. What are enzymes? What is their function?

20. Fill the chart out below.

Molecule	Elements that Compose it	Subunit (monomer)	Picture	Function	Examples
Carbohydrate					
Lipid					
Protein					
Nucleic Acid					

CHAPTER 4

21. Fill out the chart below.

Organelle	Function	Type of cell(s) found in
nucleus		
Golgi apparatus		
cell membrane		
cell wall		
mitochondria		
chloroplasts		
central vacuole		
ribosomes		
cytoplasm		

22. Create a Venn Diagram comparing and contrasting animal and plant cell structures.

CHAPTER 6

23. What is the chemical equation for photosynthesis? Label products and reactants in the equation.

24. What is the purpose of photosynthesis?

25. In what organelle does photosynthesis occur in?

26.How do plants obtain the needed 2 reactants into their systems?

27. Explain the function of the guard cells, stomata, and roots.

28. What is the energy conversion that occurs during the process of cellular respiration?

CHAPTER 7
29. What is the chemical equation for cellular respiration? Label products and reactants in the equation.

30. What is the purpose of cellular respiration?

31. In what organelle does cellular respiration occur in?

32. What is the purpose of ATP? How does it chemical makeup allow it to carry out its purpose?

33. What do cells breakdown during cellular respiration in order to produce ATP?

34. Compare and contrast the chemical equations for photosynthesis and cellular respiration. (products/reactant relationships)

35. Explain how photosynthesis and cellular respiration are interrelated.

36. Explain why it is important for plants to have chloroplasts and mitochondria?

37. Compare and contrast fermentation vs. aerobic respiration, specifically in the amount of ATP produced.

38. What is the energy conversion that occur in our bodies when we use ATP to move our muscles?

CHAPTER 23
39. What is a prokaryote?

40. Create a Venn Diagram comparing and contrasting prokaryotic and eukaryotic cells.

CHAPTER 24
41. What is a virus?
42. Create a Venn Diagram comparing and contrasting the parts of a virus vs. a prokaryotic cell.

CHAPTER 28-44
43. Explain how different organisms accomplish the same result using different specializations (gills vs. lungs vs. membranes, skeletal (endoskeleton vs. exoskeleton), respiratory (Oxygen absorption).

CHAPTER 45-51
44. What is the main function of the human cardiovascular system?

45. What is the main function of the muscular system?

46. What is the main function of the digestive system?

47. How does the nervous system send and receive messages to the muscular system (reflexes)?

48. Explain how various body systems (such as those mentioned in the previous questions) work together toward a common goal.

49. Explain how gas exchange occur in the lungs?

50. How does each human body system help our bodies and other organisms maintain homeostasis?

51. Provide examples of how the human body systems work together to maintain homeostasis.