

Name \_\_\_\_\_ Period \_\_\_\_\_

### **Review Sheet for Biology State Test**

#### **Ecology**

1. What is the ultimate source of most of the earth's energy?
2. Which organisms can utilize it?
3. Diagram the carbon cycle and explain how humans are influencing it. Include an explanation of global warming and the greenhouse effect.
4. Diagram the nitrogen cycle and explain how humans are influencing it.
5. What niche do humans occupy in the food web?
6. What is causing the extinction of many species?
7. What is the difference between inference and evidence?
8. What is abiotic and what is biotic?
9. What are the three types of symbiosis? Define each one.
10. What is a limiting factor? How does it affect a population?
11. Define quantitative and qualitative.

#### **Biochemistry**

12. What do enzymes do?
13. List the 4 macromolecules, the monomers from which they are made, and a function each macromolecule has.
14. In an animal, glucose is burned when it combines with oxygen. What products are formed?

15. Why is carbon an important atom to living things?
16. What are the six most common atoms in living things?
17. What is cohesion? What is adhesion?
18. What is an autotroph?
19. What is a solvent? What is a solute?

### **Cell Biology**

20. How is cellular respiration different from photosynthesis?
21. What are the stages of mitosis?
22. Why is mitosis important to living things?
23. What happens to a cell when placed in a hypertonic solution? Why?
24. What role do mitochondria play in a cell? Ribosomes?
25. How are plant cells different from animal cells?
26. What is the difference between diffusion and active transport?

## **Genetics**

27. What does meiosis do to the number of chromosomes in a cell?
  
28. Draw a piece of DNA with 4 base pairs.
  
29. Do a punnett square for a heterozygous cross of two tall plants. Tall is dominant.
  
30. In DNA, what always matches with G? A?
  
31. In RNA, what matches with A?
  
32. What is a genotype?
  
33. Describe genetic engineering and give two examples of real-life genetic engineering.
  
34. How do you recognize a recessive trait on a pedigree?
  
35. List the benefits and drawbacks of both sexual and asexual reproduction.
  
36. Describe the difference between transcription and translation and replication.
  
37. Where does translation take place?

## **Evolution**

38. Compare the explanations of evolution of Darwin and Lamarck.
  
39. What is natural selection?

40. What is a species and explain 2 ways that a new species can arise?
41. List the orders of classification. Which is the most specific, which is the most general?
42. What is the correct way to write the genus and species of an organism?
43. What is a dichotomous key and how do you use one?
44. Explain 4 different evidences for evolution?
45. Draw a phylogenetic tree (cladogram) which includes 5 different organisms. Explain which are most closely related and which are least closely related. How do you know?
46. What is a homologous body structure?
47. What is a vestigial structure? Give an example.
48. What are the 5 kingdoms?
49. Describe how recombination and mutation play a role in evolution.

### **Body Systems**

50. What is the main organ of the circulatory (cardiovascular) system? Draw and label it.
51. What does the aorta do?
52. Draw and label the parts of a plant (include xylem, phloem, cambium, nodes, leaf lobes, roots, root hairs, stem, stomata, root tip, etc.)

53. Explain one main way a plant can preserve its water.
54. What are the advantages/disadvantages to having spores instead of seeds?
55. What is the main organ in the excretory system?
56. Draw and label the main organ of the respiratory system.

**Scientific Method**

57. What is the scientific method?
58. Explain how scientists used the scientific method in developing the cell theory and the theory of evolution.
59. What is a hypothesis?
60. What is a theory?
61. What is the difference between a control and a variable?