

Name _____

AP Biology

TEXT: *Biology*, Campbell and Reece

7th Edition

Chapter 9

Cell Biology – Bioenergetics: Cellular Respiration

Thematic Review Guide

1. Identify some specific processes the cell does with ATP.

2. Explain why ATP is such a “high energy” molecule.

3. Sketch the ATP cycle.

4. How does ATP “couple reactions”?

5. What is the name of enzymes which phosphorylate molecules? _____

6. Define each of the following:

a. Oxidation _____

b. Reduction _____

7. What is the role of NAD^+ & FAD^{+2} in respiration?

8. Explain why respiration is considered exergonic.

9. Glycolysis starts with _____ and produces _____

10. The Krebs's cycle takes place in the. _____

11. Pyruvate is converted to _____ before the Krebs cycle.

12. The Electron Transport Chain is located in the. _____

13. Describe the role of the Electron Transport Chain. What happens to the electrons and H+?

14. What is chemiosmosis and how is it generated?

15. How does the mitochondrion generate ATP?

16. What happens to most of the energy released during cell respiration?

17. Alcoholic fermentation converts glucose to _____

18. Alcoholic fermentation is utilized by what organisms? _____

19. Lactic acid fermentation converts glucose to _____

20. Lactic acid fermentation is utilized by what organisms? _____

21. Identify examples of each of the following feedback mechanisms

a. Negative feedback _____

b. Positive feedback _____

22. Write the summary equation for cellular respiration.

a. Where did the glucose come from? _____

b. Where did the O_2 come from? _____

c. Where did the CO_2 come from? _____

d. Where did the H_2O come from? _____

e. Where did the ATP come from? _____

f. What else is produced that is not listed in this equation? _____

23. What was the evolutionary advantage of the proto-eukaryotes that engulfed aerobic

bacteria but did not digest them? _____
