

Name \_\_\_\_\_

**AP Biology**

**TEXT: *Biology*, Campbell and Reece**

**7<sup>th</sup> Edition**

**Chapter 9**

**Cell Biology – Bioenergetics: Cellular Respiration**

**Thematic Review Guide**

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

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

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3. Sketch the ATP cycle.

4. How does ATP “couple reactions”?

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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  $\text{NAD}^+$  &  $\text{FAD}^{+2}$  in respiration?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Explain why respiration is considered exergonic.

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\_\_\_\_\_

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+?

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14. What is chemiosmosis and how is it generated?

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15. How does the mitochondrion generate ATP?

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

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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? \_\_\_\_\_

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