AP Biology **Name _____**
Chapter 9 Guided Reading

1. Define the two catabolic pathways:
   a. Fermentation

   b. Cellular respiration

2. Define the following terms:
   a. Redox reactions

   b. Oxidation

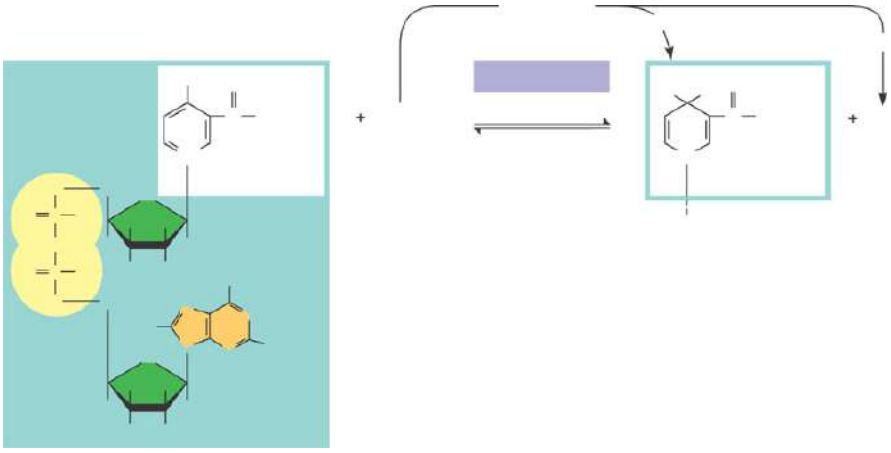
   c. Reduction

   d. Reducing agent

   e. Oxidizing agent

3. In cellular respiration, what is being oxidized and what is being reduced?

4. Label the diagram below of the electron movement with regard to the coenzyme NAD+.

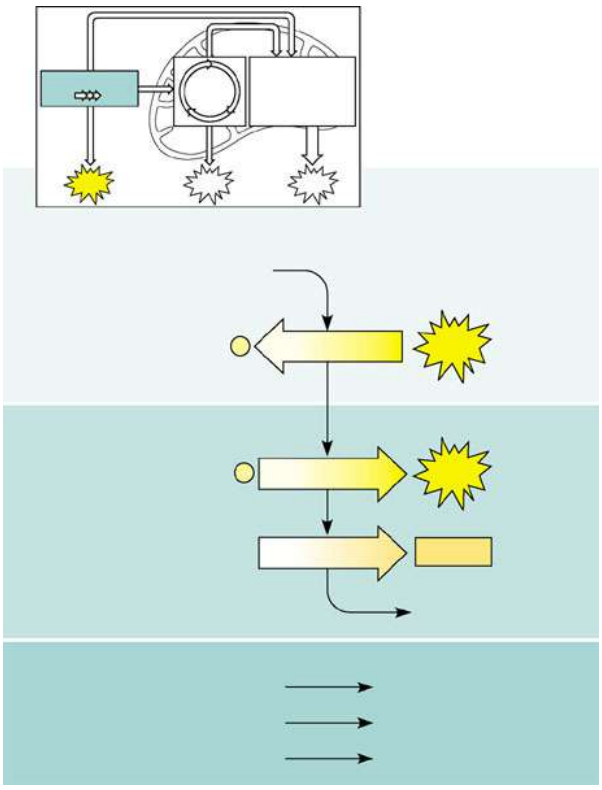


5. Why are electron transport chains an advantage to living systems?

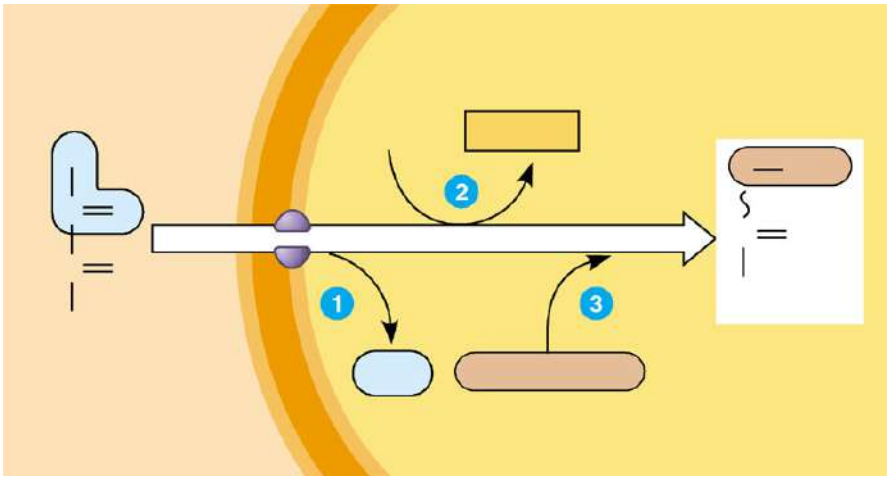
6. What are the three stages of aerobic cellular respiration?

7. What is substrate-level phosphorylation?

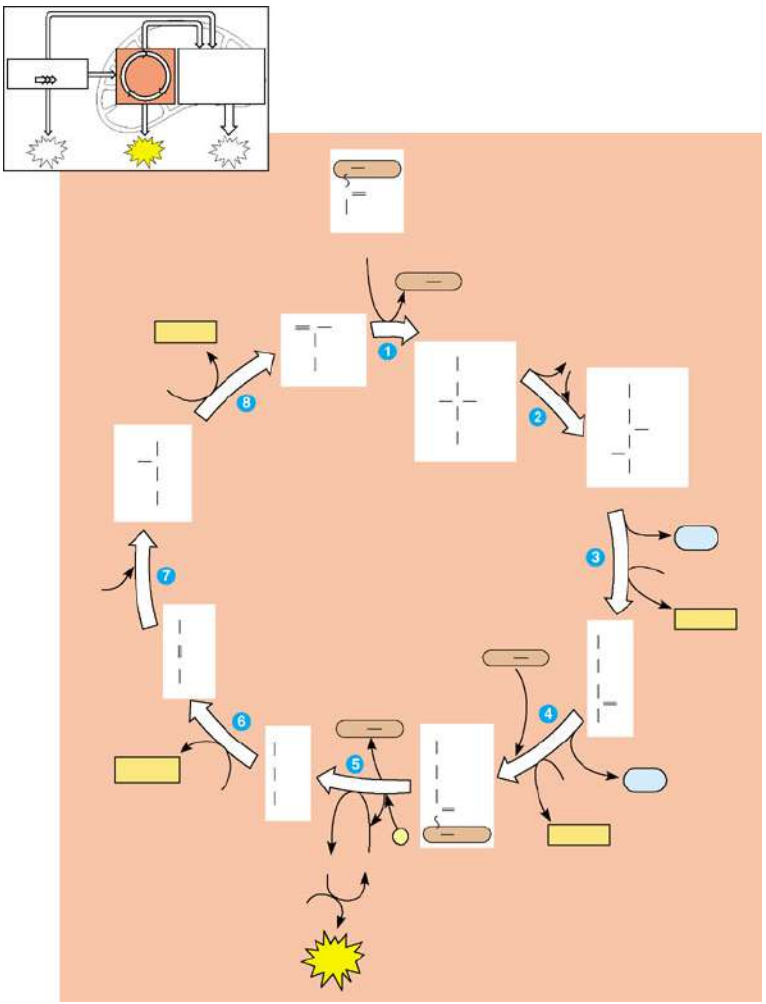
8. Complete the chart below re: glycolysis



9. Label the transition reaction converting pyruvate to acetyl CoA below:



10. Label the citric acid cycle below:



a. Where does the C “go” that is removed?

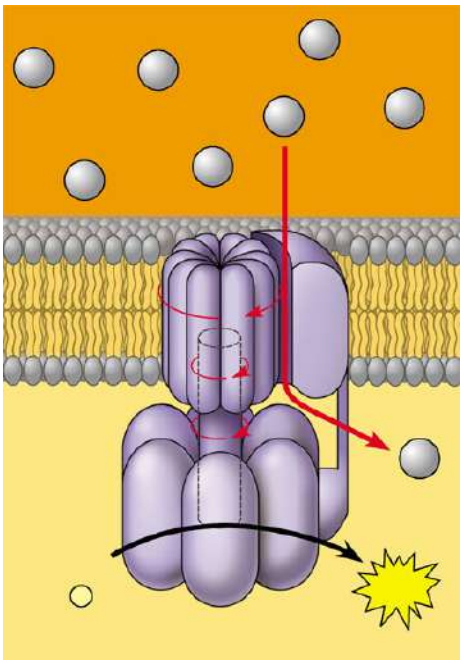
b. What is happening when NAD+ → NADH + H+?

c. Where is substrate level phosphorylation happening?

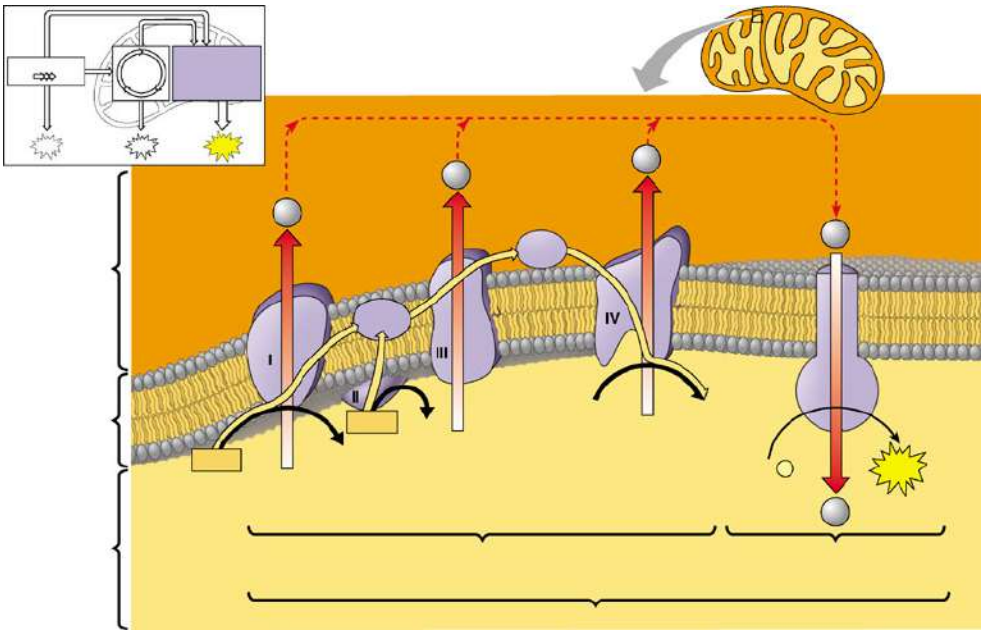
11. What is oxidative phosphorylation?

12. What are cytochromes?

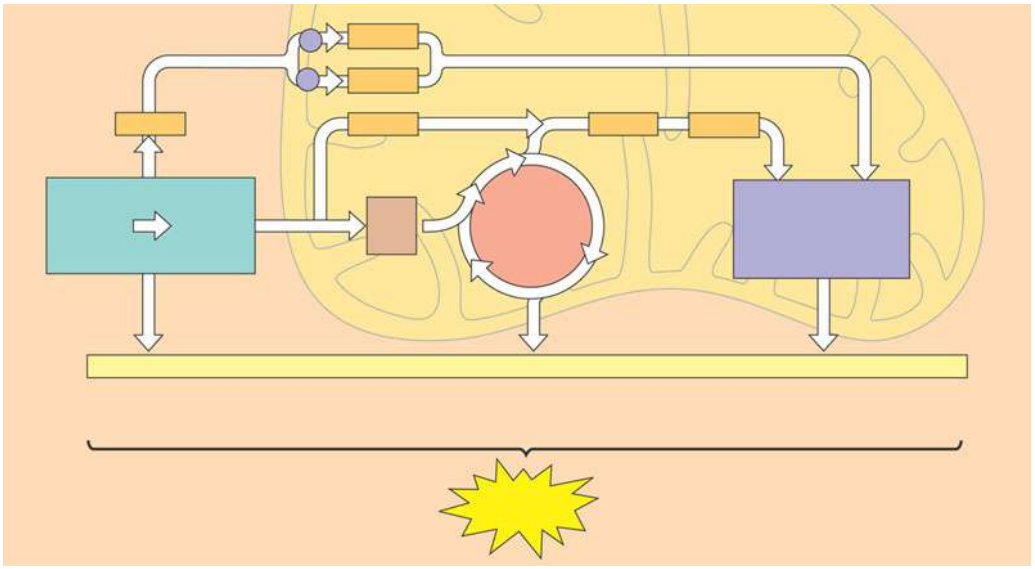
13. Define chemiosmosis and label the diagram below.
chemiosmosis:



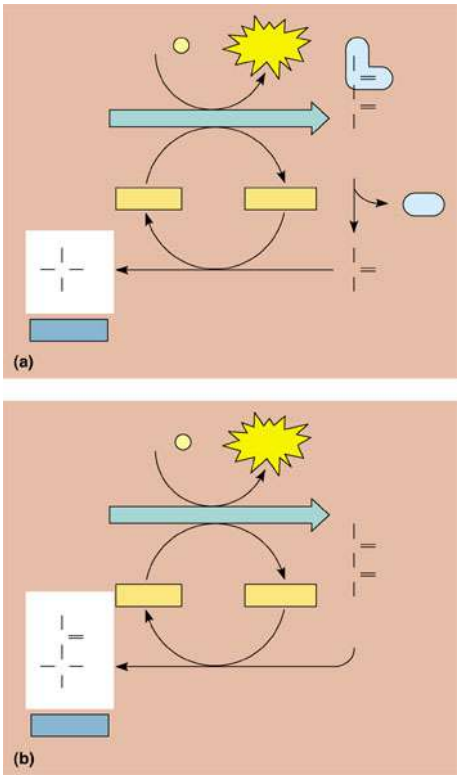
14. Label the diagram below of the activities occurring on the ETC.



15. Complete the summary diagram of cellular respiration.



16. Label the diagram of fermentation below:



17. Does aerobic cellular respiration happen in prokaryotic organisms – if yes – where?

18. What is the overall purpose of fermentation? Why does it have to occur?

19. What is a facultative anaerobe?

20. What is the evolutionary significance of glycolysis?

21. Why do fats provide a little more than twice as many calories per gram as compared to carbohydrates or proteins? Hint: Think of the output of the Citric Acid Cycle.

22. Why would AMP stimulate cellular respiration and ATP inhibit it?