

General Biology –Chapter 8 Review

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This review is meant to highlight basic concepts from Chapter 8. It does not cover all concepts presented by your instructor. Refer back to your notes, unit objectives, labs, handouts, etc. to further prepare for your exam.

1. Define cellular respiration as it relates to its purpose.
2. Write the equation that represents cellular respiration.
3. List the 4 stages of cellular respiration.

Fill in the blank/True or False/short answer

4. Glycolysis occurs in the mitochondria. True or False?
5. The Citric Acid Cycle takes place in the Mitochondria. True or False?
6. The preparatory reaction takes place across the inner membrane of the mitochondria. True or false?
7. The Electron Transport Chain is a series of carriers on the cristae of the mitochondria. True or false?
8. _____ (which process?) starts with a molecule of glucose.
9. _____ (which process?) ends with 2, 2-carbon acetyl CoA molecules.
10. _____ (which process?) produces both NADH and FADH₂.
11. _____ (which process?) starts with 2, 2-carbon acetyl CoA molecules.
12. ATP synthase is embedded in the inner membrane of the mitochondria. True or false?
13. During the electron transport chain, _____ (#) ATP are produced from each NADH, and _____ (#) ATP are produced from each FADH₂.
14. FADH₂ is formed from an FAD (temporary electron acceptor), 2 electrons, and 2 hydrogen ions. True or false?
15. NADH is formed from an NAD⁺ (temporary electron acceptor), 2 electrons, and 2 hydrogen ions. True or false?
16. Glycolysis is an anabolic process. True or false?
17. Glycolysis produces 4 NADH. True or false?
18. Only carbohydrates can undergo the process of cellular respiration. True or false?
19. The _____ (which process?) creates a proton gradient needed for the production of ATP.
20. The Citric Acid cycle breaks down molecules of glucose. True or false?
21. The Citric Acid cycle produces _____ (#) CO₂ molecules per Acetyl-CoA molecule that comes into the cycle. This is the carbon dioxide gas that we exhale.
22. The Citric Acid Cycle produces the most ATP during cellular respiration. True or False?
23. The complete oxidative breakdown of glucose results in 36-38 molecules of ATP. True or false?
24. The first step of the Citric Acid cycle involves binding the Acetyl-CoA to a 4-carbon carrier molecule. True or false?
25. The preparatory reaction breaks pyruvates into acetyl-CoA and water. True or False?
26. When oxygen is not available, glycolysis can still occur. True or False?
27. The preparatory step produces 2 ATP's. True or false?

28. In animals, the pyruvate gets converted to _____ during fermentation.
29. Essential amino acids are the ones our body makes naturally. True or false?
30. Oxygen is the final electron acceptor from the electron transport chain. True or false?
31. If 4 ATP are produced during glycolysis, why do we say glycolysis has a net gain of only 2 ATP?
32. Which of the 4 stages of cellular respiration produces the most energy?
33. How much of the original glucose molecule remains after the citric acid cycle?
34. How many ATP are produced by anaerobic respiration?