

- 1) How many molecules of ATP would be produced from 20 molecules of glucose at the end of fermentation?
 - A) 10
 - B) 20
 - C) 30
 - D) 40
 - E) 100
- 2) In plant cells, glycolysis occurs in the _____, and cellular respiration occurs in the _____.
 - A) mitochondria, chloroplast
 - B) mitochondria, cytoplasm
 - C) cytoplasm, mitochondria
 - D) cytoplasm, chloroplasts
 - E) chloroplasts, mitochondria
- 3) The process that causes lactate buildup in muscles during strenuous exercise is:
 - A) glycolysis
 - B) aerobic metabolism
 - C) fermentation
 - D) the Krebs cycle
 - E) respiratory electron transport
- 4) Which of the following molecules links glycolysis with the Krebs cycle?
 - A) ATP
 - B) ADP
 - C) glucose
 - D) pyruvate
 - E) NADH
- 5) The majority of ATP produced in aerobic respiration comes from:
 - A) glycolysis
 - B) the Krebs cycle
 - C) chemiosmosis
 - D) fermentation
 - E) photosynthesis
- 6) The **main** function of cellular respiration is to produce
 - A) CO₂.
 - B) glucose.
 - C) ATP.
 - D) NADH and FADH₂.
 - E) all of the above
- 7) Both plants and animals perform
 - A) glycolysis.
 - B) fermentation.
 - C) Krebs cycle.
 - D) photosynthesis.
 - E) A, B and C are correct.
- 8) In vertebrate animal cells, where does synthesis of lactic acid occur?
 - A) cytoplasm
 - B) surface of ribosomes
 - C) mitochondrial matrix
 - D) mitochondrial inner membranes
 - E) nucleus
- 9) During glycolysis, what is the net gain of ATP molecules produced?
 - A) 2
 - B) 4
 - C) 34
 - D) 36
 - E) 38
- 10) At the end of glycolysis, the original carbons of the glucose molecule form
 - A) six molecules of carbon dioxide.
 - B) two molecules of NADH.
 - C) two molecules of pyruvate.
 - D) two molecules of citric acid.
 - E) two molecules of fructose.
- 11) From the beginning of glycolysis to the end of the Krebs cycle, what has the cell gained from the breakdown of each molecule of glucose?
 - A) two molecules of pyruvate
 - B) 4 ATP, 10 NADH, and 2 FADH₂
 - C) 2 ATP and 6 NADH
 - D) 2 ATP, 4 NADH and 2 FADH₂
 - E) 2 ATP, lactate, and NAD⁺
- 12) During which part of aerobic respiration is the oxygen actually used?
 - A) glycolysis
 - B) fermentation
 - C) Krebs cycle
 - D) conversion of pyruvate to Acetyl CoA
 - E) electron transport system
- 13) The products of the Krebs cycle include
 - A) ATP.
 - B) carbon dioxide.
 - C) NADH
 - D) B and C only
 - E) all of the above
- 14) The cristae of mitochondria can be compared functionally to the thylakoid membranes of chloroplasts because both contain a system for
 - A) enzyme synthesis.
 - B) pyruvate production.
 - C) glucose synthesis.
 - D) anaerobic respiration.
 - E) electron transport.

15) What is the source of electrons that flow through the electron transport chain of oxidative phosphorylation?

- A) Water
- B) Oxygen
- C) ATP
- D) NADH
- C) Carbon dioxide

16). Cellular respiration is about 50% efficient at converting the energy stored in glucose to ATP. What happens to the energy not stored as ATP?

- A) It is used for cellular work
- B) It is converted to sugar

- C) It is lost as carbon dioxide
- D) It is stored as NADH
- E) It is lost as heat

17. When the cell has high levels of ATP, the ATP binds to an early enzyme of glycolysis, PFK (phosphofructokinase). The binding of ATP to PFK inactivates the enzyme. This is an example of which of the following?

- A) Oxidation/Reduction
- B) Fermentation
- C) Feedback Inhibition
- D) Spontaneous Reactions
- E) ATP/ADP Cycle

18. Describe chemiosmosis and explain how it contributes to ATP production during respiration?

19. An aerobic cell can produce 38 ATP from one glucose molecule. List the metabolic processes that produce these ATP and list how many ATP are produced by each process.

20. During cellular respiration (Aerobic metabolism) there is an NAD/NADH cycle. Explain how this cycling of NAD and NADH function during respiration.