

# Unit 3 Test Review

## Cell Energy

# Multiple Choice

- An organism that makes its own food is called a/an \_\_\_\_\_.
  - A. Heterotroph
  - B. Autotroph
  - C. Eukaryote
  - D. Prokaryote
- B

# Multiple Choice

- An organism that obtains energy from the food it eats is called a/an \_\_\_\_\_.
  - A. Heterotroph
  - B. Autotroph
  - C. Prokaryote
  - D. Predator
- A

# Multiple Choice

- The molecule that living things use to store and release energy is \_\_\_\_\_.
  - A. DNA
  - B. Lipids
  - C. ATP
  - D. ADP
- C

# Multiple Choice

- An ATP molecule consists of adenosine, a 5-carbon sugar and \_\_\_\_\_ phosphate groups.
  - A. 1
  - B. 2
  - C. 3
  - D. 4
- C

# Multiple Choice

- When a cell has available energy, it can store small amounts of energy by...
  - A. Removing the third phosphate group from an ATP molecule.
  - B. Adding a second and third phosphate group to an AMP molecule.
  - C. Removing both phosphate groups from an ADP molecule.
  - D. Adding a third phosphate group to an ADP molecule.
- D

# Multiple Choice

- Energy is released by ATP when...
  - A. the bond between the second and third phosphate is broken and the third phosphate is removed from a molecule of ATP.
  - B. A third phosphate is added to a molecule of ADP.
  - C. A second and third phosphate is added to a molecule of AMP.
  - D. The third phosphate is removed from a molecule of ADP.
- A

# True or False

- ATP can store tremendous, huge amounts of energy.
- False





# Multiple Choice

- The process by which plants use the energy of sunlight to convert carbon dioxide and water to glucose and oxygen, a waste product, is called \_\_\_\_\_.
  - A. Cellular respiration
  - B. Glycolysis
  - C. Photosynthesis
  - D. The Krebs cycle
- C

# Multiple Choice

- Which of the following is the correct equation for photosynthesis?
  - A.  $\text{CO}_2 + \text{H}_2\text{O} + \text{light} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$
  - B.  $\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{energy}$
  - C.  $\text{CO}_2 + \text{O}_2 + \text{light} \rightarrow \text{H}_2\text{O} + \text{C}_6\text{H}_{12}\text{O}_6$
  - D.  $\text{H}_2\text{O} + \text{C}_6\text{H}_{12}\text{O}_6 + \text{energy} \rightarrow \text{CO}_2 + \text{O}_2$
- A

# Multiple Choice

- Plants capture the energy of sunlight using a special pigment called \_\_\_\_\_.
  - A. BTB
  - B. Stroma
  - C. Thylakoids
  - D. Chlorophyll
- D

# Multiple Choice

- Photosynthesis takes place in an organelle called a \_\_\_\_\_.
  - A. Mitochondria
  - B. Golgi Apparatus
  - C. Chloroplast
  - D. Stroma
- C

# Multiple Choice

- Chloroplasts contain saclike photosynthetic membranes called \_\_\_\_\_.
  - A. Thylakoids
  - B. Stroma
  - C. Grana
  - D. Chlorophytes
- A

# Multiple Choice

- Thylakoids are arranged in stacks called \_\_\_\_\_.
  - A. Stroma
  - B. Grana
  - C. Pigments
  - D. Chloroplasts
- B

# Multiple Choice

- The \_\_\_\_\_ is the liquid region of the chloroplast outside the thylakoid membranes.
  - A. Grana
  - B. Chlorophyll
  - C. Stroma
  - D. Mitochondria
- C

# Multiple Choice

- The light-independent reactions of photosynthesis are also known as the \_\_\_\_\_.
  - A. Calvin cycle
  - B. Krebs cycle
  - C. Stroma cycle
  - D. Autotrophic cycle
- A



# Multiple Choice

- The light-dependent reactions of photosynthesis occur in the \_\_\_\_\_.
  - A. Stroma
  - B. Thylakoids
  - C. Cytoplasm
  - D. Mitochondria
- B

# Multiple Choice

- The light-independent reactions of photosynthesis occur in the \_\_\_\_\_.
  - A. Stroma
  - B. Thylakoids
  - C. Grana
  - D. Cytoplasm
- A

# Multiple Choice

- The purpose of the light-dependent reactions of photosynthesis is...
  - A. To produce glucose
  - B. To release the energy of glucose
  - C. To produce the high energy molecules, such as ATP and NADPH, needed to power the Calvin cycle.
  - D. To convert the energy of sunlight into chemical energy.
  - E. Both C and D
- E

# Multiple Choice

- The light reactions of photosynthesis use the energy of sunlight to split water molecules producing...
  - A. High energy electrons, hydrogen ions and carbon dioxide
  - B. High energy electrons, hydrogen ions and oxygen
  - C. Hydrogen ions, oxygen and glucose
  - D. Glucose and oxygen
- B

# Multiple Choice

- The purpose of the light-independent reactions of photosynthesis is...
  - A. To make ATP.
  - B. To produce energy to power the Calvin cycle.
  - C. To produce glucose.
  - D. To produce carbon dioxide.
- C

# Multiple Choice

- In times of drought, the rate of photosynthesis would...
  - A. Increase because of more intense sunlight.
  - B. Decrease due to the lack of water.
  - C. Decrease due to the lack of carbon dioxide in the atmosphere.
  - D. Remain stable
- B

# Multiple Choice

- Which of the following is not a factor that affects the rate of photosynthesis?
  - A. Availability of water
  - B. Temperature
  - C. Oxygen concentration in the atmosphere
  - D. Light intensity
- C

# Multiple Choice

- Water is important in photosynthesis because...
  - A. It is the source of new, high-energy electrons and hydrogen ions to replace those used to make ATP and NADPH.
  - B. It is the source of oxygen required for the photosynthesis reaction to occur.
  - C. It is the source of the high-energy electrons sent to the Krebs cycle.
  - D. It is the substance that moves materials throughout a plant.
- A



# Multiple Choice

- Which of the following is a list of requirements for photosynthesis to occur?
  - A. Carbon dioxide, water, glucose and oxygen
  - B. Water, sunlight, chlorophyll and oxygen
  - C. Carbon dioxide, water, sunlight and chlorophyll
  - D. Sunlight, chlorophyll, glucose and oxygen
- C

# Multiple Choice

- The process in which cells release the energy stored in glucose and other food molecules is called \_\_\_\_\_.
  - A. Photosynthesis
  - B. The Calvin cycle
  - C. Cellular respiration
  - D. The Krebs cycle
  - E. Cellular constipation
- C

# Multiple Choice

- Which of the following is the correct equation for cellular respiration?
  - A.  $\text{CO}_2 + \text{H}_2\text{O} + \text{light} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$
  - B.  $\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{energy}$
  - C.  $\text{CO}_2 + \text{C}_6\text{H}_{12}\text{O}_6 \rightarrow \text{O}_2 + \text{H}_2\text{O} + \text{energy}$
  - D.  $\text{CO}_2 + \text{O}_2 \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{H}_2\text{O} + \text{energy}$
- B

# Multiple Choice

- Cellular respiration requires \_\_\_\_\_ so it is said to be aerobic.
  - A. Carbon dioxide
  - B. Water
  - C. Oxygen
  - D. Glucose
- C

# Multiple Choice

- Most of the reactions of cellular respiration take place in the \_\_\_\_\_.
  - A. Chloroplasts
  - B. Stroma
  - C. Cytoplasm
  - D. Mitochondria
- D

# Multiple Choice

- The process of releasing the energy stored in glucose always begins with \_\_\_\_\_.
  - A. Glycolysis
  - B. The Krebs cycle
  - C. The light independent reactions
  - D. The electron transport chain
- A

# Multiple Choice

- In the presence of oxygen, glycolysis is followed by...
  - A. Lactic acid fermentation
  - B. Alcoholic fermentation
  - C. The Krebs cycle and the electron transport chain
  - D. Anaerobic respiration
- C

# Multiple Choice

- When oxygen is not available, glycolysis is followed by...
  - A. The Krebs cycle
  - B. The electron transport chain
  - C. Fermentation
  - D. The Calvin cycle
- C



# Multiple Choice

- During glycolysis, glucose is broken down into...
  - A. ATP
  - B. Lactic acid
  - C. Carbon dioxide
  - D. Pyruvic acid
- D

# Multiple Choice

- During the conversion of glucose to pyruvic acid, two high-energy electrons are removed and sent to \_\_\_\_\_, if oxygen is present.
  - A. The electron transport chain
  - B. The Krebs cycle
  - C. The Calvin cycle
  - D. Lactic acid or alcoholic fermentation
- A

# Multiple Choice

- The pyruvic acid produced during glycolysis is sent to \_\_\_\_\_, if oxygen is present.
  - A. The electron transport chain
  - B. The Krebs cycle
  - C. The Calvin cycle
  - D. Lactic acid or alcoholic fermentation
- B

# Multiple Choice

- During the Krebs cycle, the pyruvic acid produced during glycolysis is...
  - A. Used to convert ADP to ATP.
  - B. Broken down further, in a series of steps, to carbon dioxide producing ATP.
  - C. Broken down into high-energy electrons which are used to make ATP.
  - D. Sold on the streets.
- B

# Multiple Choice

- During the Krebs cycle, high-energy electrons are produced and sent...
  - A. To lactic acid molecules
  - B. To ethyl alcohol molecules
  - C. To the electron transport chain
  - D. To the Calvin cycle
- C

# Multiple Choice

- The electron transport chain...
  - A. Produces glucose
  - B. Removes high-energy electrons
  - C. Uses high-energy electrons to convert ADP to ATP
  - D. Transports electrons to lactic acid or ethyl alcohol
- C

# Multiple Choice

- The process in which glycolysis continues to produce ATP in the absence of oxygen is called \_\_\_\_\_.
  - A. Glycolysis
  - B. Fermentation
  - C. Aerobic respiration
  - D. The Calvin cycle
- B

# Multiple Choice

- During fermentation, pyruvic acid cannot be sent to the Krebs cycle because oxygen is not available. Pyruvic acid is, instead, converted to....
  - A. Glucose
  - B. Carbon dioxide
  - C. Catholicism
  - D. Ethyl alcohol or lactic acid
  - E. ATP
- D



# Multiple Choice

- When oxygen is not available, high-energy electrons removed during glycolysis cannot be sent to the electron transport chain. Instead, they are sent to...
  - A. The Krebs cycle.
  - B. To the lactic acid or alcohol produced from pyruvic acid during fermentation.
  - C. The Calvin cycle
  - D. The light-dependent reactions.
- B

# Multiple Choice

- What products do photosynthesis produce that animals need?
  - A. Glucose and carbon dioxide
  - B. Carbon dioxide and water
  - C. Oxygen and glucose
  - D. Oxygen and water
- C

# Multiple Choice

- What product does cellular respiration produce that plants need?
  - A. Carbon dioxide
  - B. Oxygen
  - C. Glucose
  - D. ATP
- A

# Multiple Choice

- What causes the burning sensation felt in your muscles during vigorous, extended exercise?
  - A. The build up of alcohol during fermentation.
  - B. The build up of carbon dioxide
  - C. The build up of lactic acid
  - D. The build up of high-energy electrons
- C

# Multiple Choice

- Which of the following statements is true?
  - A. Only plants undergo photosynthesis and only animals undergo cellular respiration.
  - B. Both plants and animals both undergo photosynthesis and cellular respiration.
  - C. Plants use fermentation to produce ATP while animals use cellular respiration to make ATP.
  - D. Plants undergo both photosynthesis and cellular respiration but animals undergo only cellular respiration.
- D