ALBERTA BIOLOGY 20 · UNIT 3 · 10 QUESTIONS

Photosynthesis and Cellular Respiration — Practice Test

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1 **The role of oxygen in aerobic cellular respiration is to**

- **A** split the glucose molecule during glycolysis
- **B** act as the final electron acceptor, combining with electrons and hydrogen ions to form water
- **C** carry hydrogen from the Krebs cycle to the electron transport chain
- **D** provide the energy used to build glucose

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2 **In cellular respiration, the coenzyme NADH functions mainly to**

A store carbon dioxide until it can be released

B split water molecules in the mitochondrion

C carry hydrogen to the electron transport chain

D convert glucose into starch for storage

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3 **The inner membrane of a mitochondrion is folded into cristae. These folds are important because they**

A increase the surface area available for the electron transport chain and ATP production

B store the glucose that the cell will respire

C contain the enzymes that carry out glycolysis

D produce the carbon dioxide released by the cell

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4 **On a hot, dry day, a plant closes its stomata to reduce water loss. As a result, the rate of photosynthesis usually decreases, mainly because**

A the chlorophyll in the leaf breaks down in the heat

B less carbon dioxide can enter the leaf

C cellular respiration stops when the stomata close

D the roots stop absorbing water from the soil

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5 **The graph shows the number of water molecules split as oxygen molecules are released in the light dependent reactions. The number of water molecules split to release 24 oxygen molecules is ____**

ANSWER _____

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6 **The main purpose of fermentation in a cell that lacks oxygen is**

- **A** to produce most of the ATP the cell needs
- **B** to break down lactic acid into glucose
- **C** to release oxygen for aerobic respiration
- **D** to regenerate NAD^+ so that glycolysis can continue

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7 **A cell obtains energy it can use for work when**

- **A** glucose is converted into starch
- **B** ADP joins with a phosphate group to form ATP
- **C** water is split during the light-dependent reactions
- **D** ATP is broken down into ADP and an inorganic phosphate

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8 **Aerobic respiration produces 36 ATP from each glucose molecule, while fermentation produces a net of only 2 ATP from each glucose molecule. Aerobic respiration produces ____ times as much ATP per glucose molecule as fermentation.**

ANSWER _____

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9 **Carotenoids, the orange pigments in leaves, assist photosynthesis by**

A absorbing wavelengths of light that chlorophyll absorbs poorly and passing the energy to chlorophyll

B reflecting all light away from the leaf

C splitting water molecules during the light-dependent reactions

D carrying carbon dioxide into the leaf through the stomata

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10 **Photosynthesis and aerobic cellular respiration are similar in that both processes**

A occur only in the cells of animals

B split water to release oxygen gas

C use an electron transport chain and chemiosmosis to produce ATP

D convert glucose directly into carbon dioxide

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ANSWER KEY

1.	B	**5.**	48	**9.**	A
2.	C	**6.**	D	**10.**	C
3.	A	**7.**	D		
4.	B	**8.**	18		

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