**Figure 1**

Base your answer to the question on the information and diagram below and on your knowledge of biology.

The setup below shows four test tubes. Tube 1 contains water only. Tube 2 contains a live snail. Tube 3 contains a live green water plant. Tube 4 contains both a live green water plant and a live snail.

<table>
<thead>
<tr>
<th>Tube 1</th>
<th>Tube 2</th>
<th>Tube 3</th>
<th>Tube 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Snail</td>
<td>Plant</td>
<td>Plant + Snail</td>
</tr>
</tbody>
</table>

1. **[Refer to figure 1]**
   
   In this setup, which tubes contain at least one organism carrying on cellular respiration?
   
   A. tubes 1 and 2, only  
   B. tubes 2 and 4, only  
   C. tubes 3 and 4, only  
   D. tubes 2, 3, and 4, only

2. **The most likely result of completely removing carbon dioxide from the environment of a plant is that sugar production will**
   
   A. continue at the same rate  
   B. increase and oxygen production will also increase  
   C. increase and oxygen production will stay the same  
   D. decrease and eventually stop
3. [Refer to figure 2]
Rotenone is an insecticide that is toxic to humans as well as to insects. Rotenone interferes with the process of ATP production in the cell. Which row in the chart below correctly identifies the structure where ATP is produced and the reason it is affected by rotenone?

<table>
<thead>
<tr>
<th>Row</th>
<th>Structure</th>
<th>Reason Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>A</td>
<td>It would be unable to store enzymes for ATP production.</td>
</tr>
<tr>
<td>B.</td>
<td>B</td>
<td>Production of ATP would occur less efficiently.</td>
</tr>
<tr>
<td>C.</td>
<td>C</td>
<td>The raw materials used for ATP production would be altered.</td>
</tr>
<tr>
<td>D.</td>
<td>D</td>
<td>Absorption of the ATP would increase here.</td>
</tr>
</tbody>
</table>

4. Which life process carried out by a green plant is represented in the diagram below?

A. respiration  
B. photosynthesis  
C. digestion  
D. replication
Base your answer to the question on the information and diagram below and on your knowledge of biology. The diagram represents a plant leaf cell and two different molecules used in the process of glucose synthesis.

5. [Refer to figure 3]
Which statement best describes a function of glucose in plant cells?
A. It is converted into solar energy in the chloroplasts.
B. It can be used directly as a building block in protein synthesis.
C. It can be used during the digestion of fats.
D. It is used during cellular respiration in the mitochondria.

6. The chart below lists substances involved in the process of photosynthesis.

<table>
<thead>
<tr>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>A glucose</td>
</tr>
<tr>
<td>B oxygen</td>
</tr>
<tr>
<td>C carbon dioxide</td>
</tr>
<tr>
<td>D water</td>
</tr>
</tbody>
</table>

Which statement best describes how these substances interact in photosynthesis?
A. A and B combine to produce C and D.
B. B and C combine to produce A and D.
C. C and D combine to produce A and B.
D. A and C combine to produce B and D.

7. The reaction shown below converts the energy from nutrients to ATP:

Glucose + Oxygen → Carbon Dioxide + Water + ATP

What is this process called?
A. cyclosis
B. diffusion
C. cellular respiration
D. glucose synthesis

8. The diagram below shows an organelle in one of your cells:

This organelle is in charge of
A. intracellular digestion
B. cellular respiration
C. synthesis of glucose
D. hydrolysis of oxygen
9. The diagram below represents a cell structure involved in converting energy stored in organic molecules into a form used by animal cells.

The arrows represent the movement of which substances?
A. carbon dioxide and sugar  
B. oxygen and ATP  
C. ATP and carbon dioxide  
D. oxygen and sugar

10. In the human body, carbon monoxide reduces the amount of oxygen that can be transported to cells. Breathing in too much carbon monoxide will most likely result in the production of
A. less ATP  
B. less glucose  
C. more DNA  
D. more protein

11. In the cells of the human body, oxygen molecules are used directly in a process that
A. releases energy  
B. digests fats  
C. synthesizes carbohydrate molecules  
D. alters the genetic traits of the cell

12. The energy used to obtain, transfer, and transport materials within an organism comes directly from
A. ATP  
B. DNA  
C. sunlight  
D. starch

13. Plants produce sugar and release oxygen during the process of photosynthesis. Why do plants make the sugar?
A. To move water from the roots to the leaves.  
B. To fill the large (or central) vacuole.  
C. To use in the mitochondria to release energy.  
D. To use in the nucleus as a cell membrane.
Use the information from the passage below and your knowledge of life science to answer the question.

The average person takes 12–20 breaths per minute. Multiply that out for an average of approximately 17,280–28,800 breaths per day.

The human respiratory system is responsible for all this activity. It brings in oxygen and allows us to get rid of carbon dioxide gas. From the first breath you take to the last one, you are using oxygen and producing carbon dioxide that needs to be removed from your body.

14. [Refer to figure 4]
Which cell organelle uses oxygen to produce energy for the cell to use for life processes?
   A. chloroplast
   B. mitochondrion
   C. nucleus
   D. ribosome

15. The diagram below represents a cell of a green plant.

   ![Cell Diagram]

   Solar energy is used to produce energy-rich compounds in structure
   A. A
   B. B
   C. C
   D. D