1. Based on its word parts what does *gastritis* mean?
   a. intestine-inflammation
   b. intestine-removal
   c. intestine-small (diminutive)
   d. liver-inflammation
   e. liver-removal
   f. liver-small (diminutive)
   g. stomach-inflammation
   h. stomach-removal
   i. stomach-small (diminutive)

2. Which of the following is an organic molecule?
   a. CH₃
   b. H₂O
   c. NaOH
   d. PO₄
   e. None of the above

3. What is the name of CO₂?
   a. carbon dioxide
   b. hydroxide ion
   c. starch
   d. water
   e. None of the above

4. The OH⁻ molecule has...
   a. equal numbers of protons and electrons.
   b. more electrons than protons.
   c. more electrons than neutrons.
   d. more neutrons than electrons.
   e. more neutrons than protons.
   f. more protons than electrons.
   g. more protons than neutrons.

5. Which of the following is **FALSE** about a water molecule?
   a. It contains 2 hydrogen and 1 oxygen atoms.
   b. It has a more negative and a more positive end.
   c. It is very strongly bonded and can never breaks apart.
   d. It lacks nitrogen atoms.
   e. None of the above. (All are true about water.)

6. This molecule is which of the following?
   ![Molecule Diagram]
   a. cholesterol
   b. DNA
   c. fructose
   d. glucose
   e. starch

7. Nitrogen atoms tend to form how many bonds?
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5

8. Which of the following is what a buffer does?
   a. Breaks apart starch molecules.
   b. Copies DNA.
   c. Helps maintain a specific pH.
   d. Makes oxygen.

9. Which of the following is a group that does not receive the treatment (thing of interest) in a scientific study?
   a. experimental group
   b. control group
   c. treatment group

10. According to Dr. Ghedotti why do scientists usually sound so tentative?
    a. Because neurotics are always tentative and scientists are neurotic.
    b. Because scientists are being political about it.
    c. Because scientists cannot reject something as incorrect.
    d. Because scientists must maintain doubt about all their conclusions.
**MATCHING.**—For the following exercise match the answers in the right column, *which may be sub-units or descriptors*, with the corresponding substance in the left column. *Each letter may be used more than once or not at all.*

1. Cellulose
2. DNA
3. Glycogen
4. Protein
5. Starch

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. 3 hydrocarbon chains</td>
<td>B. 4 fused hydrocarbon rings</td>
</tr>
<tr>
<td>C. Amino acid</td>
<td>D. Glucose</td>
</tr>
<tr>
<td>E. Nucleotides</td>
<td>F. Water</td>
</tr>
</tbody>
</table>

**INTERPRET THE NUTRITION LABEL.**—For the following exercise answer the questions about the provided nutrition label.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3. How many <strong>grams of starch</strong> are in 1 serving of this food.</td>
<td></td>
</tr>
<tr>
<td>4. What does <strong>starch</strong> provide to a person that eats it. What are its digestive characteristics?</td>
<td></td>
</tr>
<tr>
<td>5. Based on just this nutrition label, is this food something that would be healthy to consume multiple servings per day? Why specifically would you consider it healthy or unhealthy?</td>
<td></td>
</tr>
</tbody>
</table>

---

1. How many **grams of cellulose** are in 1 serving of this food.

2. What does **cellulose** provide to a person that eats it. What are its digestive characteristics?
DEFINITIONS.—Define each biological/scientific word below in as concise and clear a manner as possible.

1. Diffusion

2. Enzyme

3. Glycogen

4. Placebo

5. Science

SHORT ANSWER.—Address each question in as concise and lucid a manner as possible. Do NOT exceed the space provided.

1. (a.) Explain the carbonate buffer system. Be sure to indicate its function and the molecules involved. (Feel free but do not feel obliged to use a labeled diagram or chemical equation for your answers.)

(b.) Generally explain what happens chemically as a result of the carbonate buffer system when someone has lung problems that do not allow them to exhale (get rid of enough) carbon dioxide? (Put another way… When someone can’t get rid of carbon dioxide normally, what happens to this patient’s blood and why?)
2. Read information taken from the Airborne® dietary supplement website (http://www.airbornehealth.com/) and answer the following questions.

When Victoria Knight-McDowell taught second grade at Spreckels Elementary School near Carmel, California, she often brought home more than papers to grade.

That inspired her to create a drug-free formula that would give her immune system a fighting chance. After consulting with nutrition experts and herbalists, she experimented with different formulations and delivery methods before creating the blend that would eventually become Airborne®.

From its homegrown roots, Airborne® has become the leading herbal supplement in retail drugstores, supermarkets and mass merchant retailers nationwide.

Victoria’s best-selling product remains true to her philosophy and to its humble origins. Airborne® is an herbal formula made by a teacher who refused to have her immune system pushed around.

"When we started producing Airborne® commercially, I thought it could become a successful product for people who want a natural way to support their immune system. But I had no idea it would take off the way it has."

[Elsewhere on the website] Celebrities take Airborne® too! (Lists Fergie, Kate Walsh, and Kevin Costner.)

(a.) Using the critical thinking we discussed in class, what sorts of statements above should you focus on very carefully, because their implied meaning is different than their scientific meaning or because something is suggested as evidence that does not constitute scientific (or even logical) evidence for a claim. Identify at least three.

(b.) In the space below design a simple but rigorous clinical study that could help determine if use of Airborne® results in people getting sick less over the course of a year. (Note that Airborne® is taken as a powder or tablet dissolved in water.)