AMI Unit Test

Answer the following questions to the best of your knowledge. Some questions can be answered well in just a few sentences, while others will probably need more explanation. Even if you do not know how to answer a question, respond as best you can so you can at least get partial credit. The numbers in red are suggestions for how long you might spend on each question. They are only suggestions to help you make sure to get through the whole test.

1. **(8 minutes) You are an entomologist (scientist who studies insects) tasked with finding out which of the two streams in your area has the greater diversity of invertebrates. You do one collection in each of the streams, by going to the place in the stream that is most easily accessed and running the net through the water for a few minutes. You come back to the lab to do the calculation with the following data:**
   Stream A contains: 12 mayflies, 2 stoneflies, 1 caddisfly, 8 snails, 3 true bugs, 3 true flies, and 1 dragonfly.
   Stream B has a diversity of: 8 mayflies, 3 stoneflies, 3 caddisflies, 2 snails, 6 true bugs, 3 true flies, and 4 dragonflies. Surprise! Someone else did the calculation for you! The diversity is: .175
   ***Use this data to calculate the diversity for Stream A and come up with an answer for which stream has the higher invertebrate diversity. Remember* you aren't telling me which stream has the higher diversity number, you are telling me which stream has the higher diversity of organisms.**

2. **(3 minutes) In question one, describe the problems there would be if you were being paid to answer the question (of which stream has the higher diversity of invertebrates). What would you need to do differently in order to confidently provide an *accurate* answer to the question?**

3. **(7 minutes) Why would people be interested in the amount of diversity of invertebrates in a stream or other aquatic ecosystem? Why would diversity be different in different places or different streams? What factors might affect it? (Scientists certainly do get paid to figure this stuff out).**

4. **(7 minutes) Describe the relationships between the four functional feeding groups. (In other words, how do organisms in the groups affect each other and/or how do they interact?)**

5. **(4 minutes) If you were a scientist who was asked try and figure out what the quality of a stream was *last year*, how would you go about finding an answer?**

6. **(7 minutes) You are asked to assess the condition of the part of the stream that runs through campus. You do many collections and come up with the following data (averaged for you already):**
   5 mayflies (3 varieties), 9 true flies (2 varieties), 3 true bugs (2 varieties), 12 snails (1 variety), 7 caddisflies (4 varieties), 14 stoneflies (5 varieties), 4 dragonflies (2 varieties).
   Use the chart to figure out the condition of the stream.