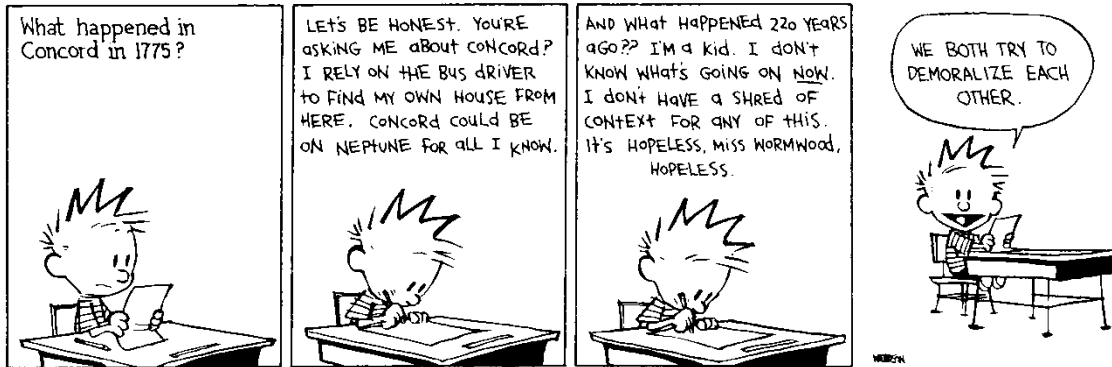


Name _____

BIOL 103, Fall 2008 - Exam 2



PLEASE WAIT TO BEGIN

PLEASE ASK IF YOU HAVE ANY DOUBT REGARDING WHAT A QUESTION IS ASKING FOR

1. (3 pts) The population of Canada is approximately 30 million. How does this compare proportionally to the population of the United States?

- a) 5%
- b) 10%
- c) 20%
- d) 50%
- e) nearly the same

2. (3 pt) How many people live in China? _____

3. (3 pt) When did the last ice age end? _____

4. (3 pt) How old is the planet earth? _____

5. (3 pt) When is longest day of the year in Bozeman? _____

6. (8 pts) In 1970, the average Chinese family had 5.8 children. Today that number is approximately 1.7, but the population of China is increasing by approximately one million people every five weeks. Explain how this can be? Use a diagram if it would be helpful.

7. (8 pts) In 1970, the average Chinese family had 5.8 children. Today that number is approximately 1.7. Why has the birth rate dropped so dramatically? (1 – 2 sentences)

8. (8 pts) Describe some of the fossil evidence that species have evolved, and explain how this evidence is interpreted.

9. (8 pts) How are new species formed?

10. (8 pts) Both the Galapagos Islands and Madagascar have many endemic species. However, the plants and animals of Madagascar are much more different from the flora and fauna of Africa than the plants and animals of the Galapagos are from the flora and fauna of South America. How can evolutionary theory explain this contrast? (1 to 2 sentences)

11. (8 pts) In class, we discussed several possible explanations for why there are no trees on the top of tall mountains (e.g. Mount Baldy in the Bridger Mountains). One hypothesis was that it is too windy for trees to grow.

a. (4 pts) Describe a simple test that you could perform to test this hypothesis. (By “simple,” I mean that it doesn’t require more knowledge of botany or soil science than a typical high school student would have).

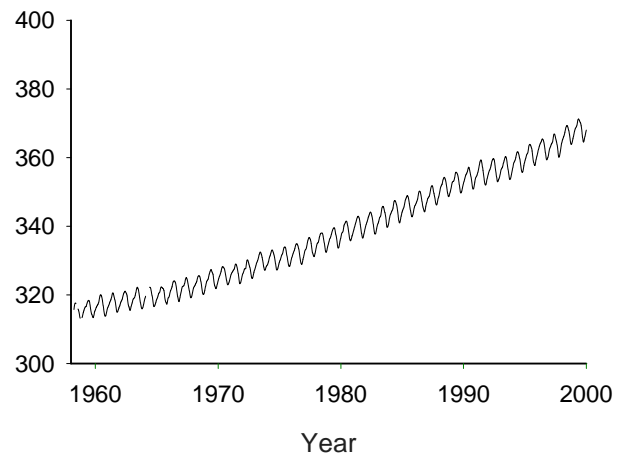
b. (2 pts) Specify what the “too windy” hypothesis predicts you would observe if you conducted the experiment.

c. (2 pts) Indicate what you are likely to observe if you actually conducted your experiment. Why?

12. (8 pts) Explain in one or two sentences why adding fertilizers to crops increases plant growth.

13. (8 pts) The earth's axis is tilted 23 degrees with respect to its orbit around the sun. What would be different if this tilt was 10 degrees instead?

The following three questions refer to the figure below (which was discussed extensively in lecture).



14. (3 points) What does the vertical axis measure?

15. (3 points) Why is the line trending upwards?

16. (3 points) What causes the annual wiggles?

17. (8 pts) It has been said that “if you take care of people, population will take care of itself” – meaning that population growth rates can be lowered by improving living standards. What evidence is available to support or refute this claim?