

7. The cycle that most closely matches in time the recurrence of ice ages in the Pleistocene Epoch is:

- a. the obliquity cycle
- b. the eccentricity cycle
- c. the Wilson cycle
- d. the El Nino/La Nina cycle

8. A river near its headwaters will have:

- a. a braided pattern and a high carrying capacity for sediment
- b. a braided pattern and a low carrying capacity for sediment
- c. a meandering pattern and a high carrying capacity for sediment
- d. a meandering pattern and a low carrying capacity for sediment

9. True or false: A **depleted** $\delta^{18}\text{O}$ ratio from an ice core indicates colder temperatures for that time period.

Essay questions — (10 points each); answer **three** of the following. Please circle the numbers of the questions you want graded, and answer *both* a and b parts.

11. a. Draw a **stream profile** from the headwaters of a stream to its mouth. Indicate the **base level**, and accurately reproduce the changes in **stream gradient** in your drawing. Under the profile, label the portion of the stream where **erosion** would dominate, and the portion where **deposition** would dominate.

b.

12. a. Lopez Island in Puget Sound has its own aquifer. Assume that the entire island is made of rock that is porous and permeable, both to fresh water and salt (sea) water. Draw a cross-section of Lopez Island that shows the **freshwater lens** in the aquifer perched atop the saline (salty) part of the aquifer.

b.

13. a. Use the fact that nearly all of the Pacific Plate (and the other oceanic plates under the Pacific Ocean) “ends” at a subduction zone, and the fact that the east coasts of North and South America (and the west coasts of Europe and Africa) do *not* have a trench, in support of your answers.

- Is the Pacific Ocean currently **growing, shrinking** or **staying the same** in size?
- Is the Atlantic Ocean currently **growing, shrinking** or **staying the same** in size?

b.

14. a. Describe the cycle of **positive feedback** that begins with a small decline in the Earth’s average surface temperature. Be sure to use the words “ice”, “temperature” and “sunlight”.

b.