Geology 12

First Exam

Spring 2015 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Short Answer 10 points each

1. To determine the absolute age of a rock using radioactive isotopes, a) what **information** must you have, b) what **assumptions** must you make, and c) how can you **control for error** in your assumptions?

2. **List** and **describe** at least **two** causes of **global** sea level changes, and **two** causes of **local** sea level changes.

3. How would you recognize that a sedimentary rock was deposited in a river channel environment?  Include information on the **lithology**, **color**, **sedimentary structures** and **fossils**.

4. **List** and **describe** the essentialgeologic features of a subduction zone.  **For each feature**, indicate whether that feature is likely to be preserved in the rock record, or is just a transient feature.

Essay 20 points

At the beginning of the 19th century, the science of geology underwent a fundamental shift from a catastrophic model of geologic change to a uniform view. Contrast the two paradigms of geologic change - catastrophism and uniformitarianism. Include these items in your discussion (feel free to organize as a list or chart if you prefer):

* definitions of each viewpoint
* differences between Lyell's uniformitarianism and the modern view
* evidence for uniformitarianism
* how we reconcile episodic events (such as asteroid impacts) with a uniform view of the Earth