GLG 101 Possible Exam 3 Essay Questions

Instructions: For your exam 3 homework, you must complete two of the essay questions below, and turn them in on the day of the exam. Essay questions turned in after the exam WILL NOT be accepted unless prior arrangements have been made. I will select two questions for the exam. You need only answer one of the selected questions on the day of the exam.

1. Draw a concept sketch of an unconformity. Have your labels describe what events affected rocks above and below the unconformity and what processes formed the unconformity.

2. Sketch and label a simplified cross section that illustrates the following principles of relative dating: cross-cutting relations (either faulting or intrusions), pieces of one rock type in another, younger rocks deposited on top of older rocks, rocks originally deposited horizontally, tilted or folded rocks, and an unconformity. Write a bullet list showing the order of events for your sketch.

3. List and discuss at least four lines of evidence that suggest the Earth has had a long history.

4. Sketch cross sections of a normal fault and a reverse fault, showing whether the stresses are pushing in or pulling from the sides and whether this type of fault thins or thickens the crust. Draw concept sketch examples of how these types of faults produce mountain ranges.

5. Sketch an anticline, syncline, and monocline, labeling each appropriately. Discuss the types of stresses involved to produce each type.

6. Use a concept sketch to discuss whether the rocks in ocean basins are young or old and why. Also discuss the origin and significance of magnetic stripes on the ocean floor.

7. Sketch and describe the main layers in the earth (crust, mantle, inner core, outer core, and lithosphere vs. asthenosphere). Indicate the approximate thickness of the crust and lithosphere.

8. Describe what is meant by isostasy. Draw and label a cross section showing how the elevation of a region is related to the thickness of continental crust, according to the principle of isostasy.

9. Describe the hazards associated with earthquakes, both on land and near the sea.

10. Sketch, annotate, and label simple cross sections of the main features found in the deep ocean basin (mid-ocean ridges, trenches, seamounts, island arcs). Use your annotations to describe how each forms.