GLG 101 Possible Exam 3 Essay Questions

I will choose two of the following essay questions to put on the exam. You need only answer one of the selected questions on the day of the exam. The essay questions on the exam will be word-for-word off this sheet.

1. Draw a concept sketch of an unconformity. Label all the relevant parts of your sketch, and describe what events affected rocks above and below the unconformity. Describe in detail 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 detailed bullet list describing the order of events for your sketch.

3. Discuss in detail at least four lines of evidence that suggest the Earth has had a long history. Where possible, use a sketch to help clarify your discussion.

4. Sketch a cross section of a hill whose slopes are at the angle of repose. Describe the importance of the angle of repose, and discuss how this situation would limit where you could build a house, or a road, on the hill.

5. Draw a sketch cross section of two of the following: a) rock fall, b) rock slide, c) slump, or d) creep. On your sketches, draw and label as many factors as you can that would permit this type of mass wasting to occur.

6. Sketch the components of the hydrologic cycle. On your sketch, label and describe the main processes (e.g., evaporation) that are occurring.

7. Sketch a meandering stream, showing the channel, floodplain, and terraces. Indicate on your sketch: a) where water flow is the fastest, b) where erosion and deposition occur, and c) where would be the safest place to build a bridge across the river. Also, sketch a cross section of two or three terraces, describing their origin and indicating which is the oldest terrace.

8. Draw and label a concept sketch showing how a cone of depression forms. You may do this with a single sketch or two sketches (before and after). Discuss some factors that influence whether a cone of depression forms from pumping in a well and the affect it has on the local groundwater table and flow direction.

9. Discuss some possible causes of glaciations, and briefly describe Earth’s recent glacial history and accompanying evidence.

10. Draw a sketch illustrating one the following three causes for a desert: 1) position with respect to prevailing winds and a mountain range, 2) proximity to a cold ocean current, and 3) position with regards to global air circulation flow. Your sketch may be a cross section, a map view, or some of both. Describe in detail how the processes in your sketch cause deserts.