

Geo 101 Practical Final Exam Information

The Final practical exam covers the second half of the semester, and will consist of five parts:

Part 1 - Geologic Dating

A - Will consist of completing a geological timescale chart by filling in the missing names of eons, eras, periods, and epochs.

B- Will consist of determining the relative age sequence for a hypothetical geologic cross section consisting of a stratigraphic column of rock layers, using the basic stratigraphic principles like superposition and crosscutting. This exercise will be much like the cross sections you analyzed in the geology dating lab.

C- Will consist of determining the absolute ages sequence for three igneous rock units in a hypothetical geologic cross section consisting of a stratigraphic rock column. This exercise will be just like the geology dating lab.

D- Will consist of determining the resolved ages of sedimentary units from a hypothetical geologic cross section using relative and absolute age data gathered in Parts III and IV. This exercise will be much like your geology dating lab.

Part 2 - Earthquakes - Will consist of calculating the epicenter and magnitude of a hypothetical earthquake:

1. Determine the distances from the epicenter for three stations using S-P intervals
2. Determine the epicenter from triangulating the three overlapping station distance circles.
3. Determine the magnitude using the S-wave amplitude and distance information from each station.

The necessary knowledge and skills for identifying the epicenter:

- a) Know how to read a seismogram.
- b) Know how to calculate distance from the epicenter using the S-P interval chart
- c) Know how to draw the distance circles and triangulate by locating the three-circle intersection.

The necessary knowledge and skills for identifying the magnitude:

- a) Know how to read a seismogram.
- b) Know how to measure the amplitude of the largest S-wave on a seismogram.
- c) Know how to draw the cross-over lines on a Richter chart using the epicenter distance and S-wave amplitude info.

Part 3 - Structural Geology - Will consist of interpreting and completing structure diagrams:

1. Locate, recognize, and interpret structural information on a block diagram like, contacts, strike and dip, and fold and fault symbols.
2. Determine the orientation and type of beds, folds and fault structures.
3. Complete a structure diagram by filling in formation contacts, and structural symbols, like strike and dip, fold axes, and fault motion arrows.
5. Determine the stratigraphic age relationship between rock units and deformation events.

The necessary knowledge and skills for reading and interpreting topographic maps:

- a) Know the rules of dipping beds, folds, and faults.
- b) Be able to recognize and understand all the types of structural information found in a structure block diagram.

- c) Know the concepts behind tilted beds, folding, and faulting.
- d) Know how to take a compass bearing.
- e) Be able to read the structural elements in a diagram or map by the structural patterns and age relationships of the strata.
- f) Be able to draw structural map views and cross sections using the structural information supplied.

Part 4- - Geology Maps - Will consist of interpreting and completing geologic maps:

1. Locate, recognize, and interpret all the pertinent topographic and structural information on a geology map like, contours, formations, contacts, strike and dip, and fold and fault symbols.
2. Determine the orientation, age and type of beds, folds and fault structures.
3. Complete a geologic cross section by filling in formation contacts, structural symbols, like strike and dip, fold axes, and fault motion arrows.
5. Recognize relationships between geology and topographic relief, such as ridges, valleys, peaks, and depressions.

The necessary knowledge and skills for reading and interpreting topographic maps:

- a) Know the rules of dipping beds, folds, and faults.
- b) Be able to recognize and understand all the types of geologic and structural information found both, in a geology map, and in its explanation.
- c) Know the concepts behind tilted beds, folding, and faulting.
- d) Know how to take a compass bearing.
- e) Be able to read the structural elements in a geology map by the structural patterns and age relationships of the strata.

f) Be able to draw geologic cross sections using the rock formation and structural information supplied.

Part 5- - Tourmaline Beach - Will consist of a set of questions that address the geology of the bluff rocks at Tourmaline Beach:

1. Know the formation names, ages, lithologies, depositional settings, and fossils of the five formations observed at Tourmaline Beach
2. Know the types of folds, faults, and unconformities, and their stratigraphic location in the rock sequence at Tourmaline Beach.
3. Know any other important details about the rocks at Tourmaline Beach, including mineral veining, and exotic clasts, like the "Poway" clasts, and fossils unique to specific formations.

Practice Exercises: Check the website for final exam practice activities:

I. Geotimescale:

http://www.geoscirocks.com/geolab_final_practice_geotimescale.pdf

II. Structure Diagrams:

http://www.geoscirocks.com/geolab_final_practice_structure.pdf

III. Geology Map:

http://www.geoscirocks.com/geolab_final_practice_geo_maps.pdf