

GEOGRAPHY 2400Y — GEOLOGY

Final Examination 2011-12

Date, Location: 1400h, Saturday 14 April 2012, GC 105
Duration: 2 1/2 (TWO AND ONE HALF) hours
Value: 30 percent of the final course mark

Format: Answer 6 (SIX) questions from Section A (25% of total mark) and 3 (THREE) questions from Section B (25% of total mark each).

Section A

1. Giving examples, explain the difference between isomorphism and polymorphism.
2. What properties set the island silicates apart from the other silicate minerals?
3. Define the terms *join*, *liquidus*, *solidus* and *eutectic point*.
4. To what extent is colour useful in the interpretation of sedimentary rocks?
5. Explain the difference between slaty cleavage, schistosity and gneissosity.
6. What do blueschists tell us, and how do we know?
7. Draw a diagram of a typical trilobite, with explanatory labels.
8. Explain the difference between *moulds*, *casts* and *trace fossils*.
9. Why do graptolites often make good index fossils, while brachiopods sometimes make good conservative fossils?
10. Draw and annotate diagrams to illustrate the differences between the most commonly recognized kinds of fault.
11. What is the difference between P waves and S waves? How can we use this difference to locate earthquakes?
12. In announcing his discovery of the core, Oldham drew straight seismic rays. Why should they have been curved?
13. Why is the concept of an axial dipole important in the study of palaeomagnetism?
14. What consequences follow from the application to the Earth of Euler's theorem about the rotation of rigid bodies on the surface of a sphere?

Section B

1. Write an essay on “The Bowen Series and its Basis in Mineralogy”.
2. Write an essay on “Links between Sedimentology, Stratigraphy and Palaeontology”.
3. Write an essay on “The Concept of Metamorphic Facies”.
4. Write an essay on the body plan and evolutionary significance of *either molluscs or corals*.
5. Write an essay on “Cladistics and the Tree of Life”.
6. “Seismology is to geology as optics is to physics”. Discuss.
7. Write an essay on “The Difference Between Continental Drift and Plate Tectonics”.