

National University of Ireland, Galway  
OLLSCOIL NA hÉIREANN, GAILLIMH

SUMMER EXAMINATIONS 2003

**2nd SCIENCE  
GEOLOGY (GE212)**

**PAPER ONE**

Prof. B.P. Williams  
Prof. P.D. Ryan  
Prof. Mike Williams  
Dr. M. Feely

Time allowed: **THREE HOURS**

Answer four questions: **two** from Section A and **two** from Section B.

Allow about 45 minutes for each question.

Please use separate Answer Books for each section.

Illustrate your answers with neat sketches and diagrams where appropriate.

**SECTION A**

1. Briefly describe the main events that occurred during the Carboniferous period in Ireland.
2. Describe and illustrate the main types of sedimentary structures formed by water currents. Briefly discuss the uses of these structures to a geologist.
3. Outline the history of Ireland during the Quaternary period.
4. What are the principal forms of geological trap for hydrocarbons.

## **SECTION B**

5. Write an illustrated essay on the morphological classification of natural crystals.
6. Give an illustrated account of the atomic structural classification of the Silicate Group.
7. Outline Bowen's reaction series and show how they are useful in helping to explain the mineralogy of granite, diorite and gabbro.
8. Show with the aid of a diagram how calcite demonstrates double refraction. Then explain how a polarising filter can be used to show that the extraordinary and ordinary rays in calcite are at right angles to one another.