

National University of Ireland, Galway
OLLSCOIL NA hÉIREANN, GAILLIMH

AUTUMN EXAMINATIONS 1999

2nd SCIENCE
GEOLOGY

PAPER ONE

Prof. B.P.J. Williams
Prof. P.D. Ryan
Dr. M. Feely
Ms. E. Sweeney

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. Draw a sketch of folded sequence of beds and clearly label the following features: ANTIFORM, AXIS, AXIAL SURFACE, HINGE, LIMB. How can we use strike lines drawn on the fold limbs to identify the fold axis?
2. Write short notes on FOUR of the following:
 - (i) vertical thickness
 - (ii) way up
 - (iii) younging
 - (iv) true thickness
 - (v) pitch
 - (vi) plunge
3. Describe, using diagrams, the different fault types. How are such faults recognised on a geological map?
4. Describe the various forms of igneous intrusion and how they can be recognised on a geological map.

SECTION B

5. Write short notes on the following:
 - (a) Porphyroblasts
 - (b) Symmetry elements
 - (c) Pinacoids and prisms
 - (d) Axial ratios
6. Write short notes on the following silicate groups paying particular attention to variations in atomic structure and chemistry: (a) Olivine Group and (b) Amphibole Group.
7. Give an illustrated account of Bowen's reaction series.
8. List the main characteristics of the metamorphic rocks you would expect to encounter in a contact metamorphic aureole and in a regional metamorphic terrain.