

National University of Ireland, Galway  
OLLSCOIL NA hÉIREANN, GAILLIMH

SUMMER EXAMINATIONS 2001

**B.Sc. (HONOURS) DEGREE  
GEOLOGY  
EARTH SCIENCES**

PAPER TWO (GE406, GE422)

Prof. J.F. Dewey  
Prof. P.D. Ryan  
Prof. D.M. Williams  
Dr. P. Orr

Time allowed: Three hours

Answer four questions: **two** from Section A, and **two** from Section B.  
Please use separate Answer Books for each Section.

Illustrate your answers with neat sketches and diagrams where appropriate.

**SECTION A (GE 406)**

1. Assess the contribution of the fossil record to our understanding of the origin and early evolution of the chordates.
2. Discuss the physiological 'obstacles' that would have been faced by marine organisms attempting to colonise terrestrial environments.
3. Outline the anatomical differences between *Australopithecus*, *Paranthropus* and *Homo* and discuss their possible functional significance.
4. Ediacaran faunas are critical to our understanding of the early evolution of the Metazoa: discuss.

**SECTION B (GE422)**

5. Describe the typical facies associations found in alluvial fans and discuss their potential economic importance.
6. Explain the concept of flow regimes and discuss the parameters that control the nature of small-scale bedforms exposed to flowing water.
7. Discuss the sedimentology of deltas with particular reference to their sequence stratigraphic framework.
8. How would you expect various sedimentary facies to be distributed on a submarine fan from the pre-Quaternary geological record. How do present day fans differ from some of their older analogues?