

National University of Ireland, Galway
OLLSCOIL NA hÉIREANN, GAILLIMH

SUMMER EXAMINATIONS 2001

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

PAPER FOUR (GE406/411/412/417/422)

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

Time allowed: Three hours

Write an essay on **one** of the following topics:

1. "Until now their [palaeontologists] only option was to study the animal fossil record. But now more and more researchers are taking a different path to enlightenment: scrutinising the genetic record that has been handed down through the ages to today's creatures." (Bob Holmes, New Scientist 18 October 1997). Does molecular biology supersede evolutionary palaeobiology?
2. Design a final year undergraduate course for either Geologists or Earth Scientists. Particular emphasis is placed on you justifying any decisions that you make.

3. 'United Nations predictions are that world population will be between 7.8 and 12.5 billion by 2050, compared to 5.6 billion in 1994. Thus, the range of geological hazards and their impact is continually increasing.' Discuss.
4. 'America will choose nuclear power only if demand for electricity accelerates, nuclear costs are contained and global-warming worries grow.' Discuss.
5. Influences of the fluid phase in metamorphic and igneous settings.
6. Metamorphic petrology provides a focal point for the student of crustal evolution.
7. Sea level changes.
8. Importance of sedimentology to the hydrocarbon exploration industry.
9. Write an essay entitled 'Continental Tectonics'
10. Discuss how a knowledge of structural geology and tectonics is relevant to the society of today.