

National University of Ireland, Galway
OLLSCOIL NA hÉIREANN, GAILLIMH

SUMMER EXAMINATIONS 2000

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

PAPER THREE (GE 417)

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

Time allowed: Three Hours

Answer three questions, **Question one** in **Section A** and **two** from **Section B**.
You should spend 80 minutes on question one and about 50 minutes each on the two questions from Section B.

SECTION A

1. Discuss how sedimentological, volcanological and volcanoclastic processes contribute to the lithologies characteristic of ocean-floor settings. Your answer must be centred on the field observations you made while in Cyprus.

SECTION B

2. Explain how the position of the pole of rotation for Plate A with respect to Plate B is estimated. How is the angular distance between this pole and point at the contact between plates related to the absolute velocity of Plate A with respect to Plate B. Give examples of how this may affect the tectonic evolution of the plate margins. Also discuss, giving examples, of how a shift in the position of the pole can affect the tectonic evolution of the contact between Plates A and B.
3. Outline the process of orogenic collapse and cite the field and laboratory evidence that has been used to argue for this process. Give at least two examples of collisional orogenies that have undergone collapse.
4. Describe sedimentary basins that are formed as a result of lithospheric stretching and account for the characteristic "steer's head" geometry of their fill. Is this the only mechanism that can form sedimentary basins?
5. Either give an account of the Caledonides of Western Ireland or give an account of the evolution of the Variscides of Europe.