

National University of Ireland, Galway  
OLLSCOIL NA hÉIREANN, GAILLIMH

SUMMER EXAMINATIONS 2000

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

**PAPER TWO (GE406, GE422)**

Prof. J.F. Dewey  
Prof. P.D. Ryan  
Dr. 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. How complete is our understanding of the origin and early evolution of the chordates?
2. How did life originate?
3. Was there a 'Cambrian Explosion'?
4. What do fossils reveal about the origin and evolution of hominids?

**SECTION B (GE422)**

5. Discuss the controls and processes active on fluvial systems.
6. Describe the crustal effects of glaciation with special reference to sea-level variations.
7. What are the principal processes active on a clastic marine shelf and how may these processes be reflected in a sequence stratigraphy context?
8. Outline the evolution of a deep water submarine fan using named examples in your answer.

## Locality List

### DAY ONE

1. Overview of Aphrodite's Rock area from PETRA TOU ROMIOU. Tertiary / Mamonia contact.
2. APHRODITE'S ROCK: Kannaviou 'knocker' melange with fossils and pillow.
3. DHIARIZOS VALLEY: Ayios Photios Group turbidites and pelagic carbonates faulted together in melange
4. DHIARIZOS VALLEY: Ayios Photios Group radiolarite cherts with sole marks
5. PHASOULA VILLAGE: Mamonia alkaline variolitic lavas with zeolites
6. MAMONIA VILLAGE: sediments - folding/faulting/way-up?
7. AYIA VARVARA: epidote-hornblende schists with boundinage/dykes

### DAY TWO

1. AREDIOU VILLAGE: umbers
2. NORTH AKAKI RIVER SECTION: Unit A lavas faulted against calciturbidites
3. MALOUNDA BRIDGE (unit B) to Kamara Potamos (Units Band C)
4. AYIA KORONI: Basal Group

### DAY THREE

1. MARGI: crystal mush pillow lavas
2. KILARO BRIDGE: pillow lavas and cross-cutting dykes
3. AGROKIPIA MINE: what's left of the massive sulphides
4. Near PALEHOURI VILLAGE: plagiogranites with cross-cutting diabase
5. KHANDRIA VILLAGE: cumulates, plagiogranites and dykes

### DAY FOUR

1. AYIOUS MINAS: clast-supported chaotic deposit = volcanoclastic debris flow
2. LAYIA: numerous debris flows with some pillow lavas; overlain by Gravels
3. ARAKAPAS VILLAGE: Overview of Southern Transform Fault Zone + pillows + dykes
4. North of ARAKAPAS VILLAGE: brecciated debris flows with kinematic indicators
5. ARAKAPAS DAM: distal finely laminated sediments on top of pillow lavas
6. ROAD SECTION through mantle rocks of the Limassol Forest Complex

### DAY FIVE

1. RED MOUNTAIN: gossan related to copper mineralisation
2. MANDRIA-AYIOUS NICOLAOS ROAD: overview of the Lefkara & Pakhna
3. LEFKARA-PILLOW CONTACT; and green clay of the Kannaviou in between
4. MIDDLE LEFKARA: progressive replacement of chalk to form chert
5. UPPER LEFKARA: massive chalk grading laterally into clayey beds
6. PAKHNA FORMATION: Erosion surface, stylolites and slump bedding
7. ASPROKREMOS DAM: beach deposits overlying normally faulted beds

### DAY SIX

1. AXYLOU VILLAGE: granular & laminated gypsum; celanite deposits
2. ROAD SECTION VIEW POINT: Lefkara overlying Kathikas and Kannaviou
3. ROAD SECTION KANNAVIOU: sandstones with granite composition
4. ROAD SECTION KATHIKAS/ROTATIONAL FAULT: clasts from the Mamonia Complex