2510013

THE UNIVERSITY of York

Degree Examination 2007

ENVIRONMENT DEPARTMENT

BSc in Environmental Science
Part 1a

THE EARTH: AN INTRODUCTION TO THE SCIENCE OF THE ATMOSPHERE, CRUST AND OCEANS

Time allowed: **one and a half hours**

Answer **ALL 10** questions in **SECTION A** and **ANY TWO** questions in **SECTION B**

Each question in Section A is worth 3% of the total marks for the paper, and each question in Section B is worth 35% of the total marks for the paper.

No answer in Section A should exceed five lines (unless a sketch)

Pay adequate attention to spelling, punctuation and grammar, so that your answers can be readily understood

SECTION A

1. Explain the terms topography, elevation and relief.

2. Explain what the following types of moraine are: terminal; lateral; medial.

3. Name two pieces of evidence that suggest continental drift occurred.

4. Which gases was the first atmosphere of Earth principally composed of and where did these gases come from?

5. Draw a sketch of the Hadley Cell circulation.

6. How does the combination of winds and the Coriolis force create upwelling along the equator in the Pacific Ocean?

7. List four common arrangements of silicate tetrahedrons in silicate and silicate polymorphic minerals.

8. Name two processes that can give rise to an unconformity.

9. What do we need to know apart from the amounts of parent and daughter elements when using radioactive decay to determine rock age?

10. Place the following minerals in order of weatherability (most readily weathered first).
Quartz; calcium carbonate; iron oxide (hematite); orthoclase (a potassium-rich feldspar); anorthite (a calcium-rich feldspar).

SECTION B

1. Describe the different types of plate boundaries associated with plate tectonics. Your answer should include examples of locations where such boundaries are found on the Earth.

2. In the three steps required to move from the Earth's 2nd atmosphere to the modern day atmosphere, the first step was 'Creation of Life'. Describe the two main theories put forward for creation of life. Which do you think is more likely to have occurred and why?

3. Why do coastal protection engineers sometimes create as many problems as they solve?

4. What is soil? (10 marks). Write an essay explaining the processes by which weathering of rocks leads to soil formation (25 Marks).

5. Explain how geologists are able to work out sequences of events that have led to the strata currently observed in rock outcrops.