

THE UNIVERSITY *of York*

Degree Examination 2005

ENVIRONMENT DEPARTMENT

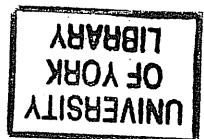
BSc in Environmental Science, Part 1a

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

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

Section A: Answer **ALL** questions in Section A; No answer in Section A should exceed 4 lines.

Section B: Answer **TWO** questions in Section B.



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

Section A

Each answer is worth 3 marks

1. Name two features typical of an eroding coastline.
2. What drives the thermo-haline circulation?
3. What would be the main consequence of failure of the Gulf Stream current?
4. What is the nebular hypothesis?
5. How much energy would a mass of 2 kg yield moving at the speed of light ($c=3 \times 10^8 \text{ m s}^{-1}$)?
6. What was the major reason for the atmosphere of Earth not suffering from a runaway greenhouse effect as on Venus?
7. List three erosional landforms associated with valley glaciation.
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

Each question is worth 35 marks

B1. What is soil? Explain the processes by which weathering of rocks leads to soil formation.

B2. Describe how the heat imbalance at the Equator leads to the observed global circulation pattern.

B3. Explain how geologists are able to work out sequences of events leading to currently observed strata in rock outcrops.

B4. Draw a sketch showing the main components of the hydrological cycle. Use the sketch to explain the dangers associated with over-exploitation of groundwater resources.

B5. Discuss factors that might be used for detecting areas that are at heightened risk from mass movement events, such as landslides. Explain which of these factors might be looked for using GIS.

