

THE UNIVERSITY *of York*

Degree Examination 2007

ENVIRONMENT DEPARTMENT

**BSc in Environmental Science
Part 1b**

SOILS IN ENVIRONMENTAL SCIENCE

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

Answer **TWO** questions only

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

1. Explain the origins of the cation exchange properties of soils (10 marks), why cation exchange capacity may be pH dependent (10 marks) and why cation exchange is such an important soil parameter (30 marks).
2. Draw a sketch to show the cycling of nitrogen in soils and briefly explain the significance of each component (35 marks). Use it to explain the natural processes regulating the amount of nitrogen stored in upland, minimally-managed soil profiles (15 marks).
3. Explain, using case studies with which you are familiar, why water quality is so important in irrigated agriculture. Include in your answer a discussion of the evolution and management of saline soils.
4. Why is soil pH so important (25 marks) and how is it regulated naturally and in agricultural soils (25 marks)?