2530008

THE UNIVERSITY of York

Degree Examination 2004

ENVIRONMENT DEPARTMENT

BSc in Environment, Economics and Ecology, Part II

SUSTAINABLE USE OF SOIL AND WATER RESOURCES

Time allowed: **two hours**

Answer **TWO** questions out of **FOUR**

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

1 Discuss, using a sketch to illustrate key principles, the biogeochemical cycling of calcium and its importance to soil sustainability. To what extent may the biogeochemical cycling of calcium be considered in isolation from the cycling of other elements?

2 Use your knowledge of the advantages and disadvantages of organic agriculture to explain the extent to which it may be regarded as a potential answer to the problems of long-term soil sustainability in the UK.

3 Explain what regulates the pH of unmanaged soils and the surface waters that drain from them in the long term. How might liming be used to protect river water biota against acid flushes in upland streams in the UK, and what difficulties might be experienced in using liming for this purpose?

4 What are the five major factors of soil formation? Using these factors, explain why it is possible to find podzols, gleysols, histosols and cambisols in a single British upland catchment within an area of 1 km^2.