Soils and Water (11:375:360)

Quiz # 2 3/31/06

Name:_________________

1. **(15 pts)** Explain how aluminum compounds, exchange and pH-dependent charge sites, and carbonates buffer changes in soil pH (see figure below).

![Soil pH diagram](image)

2. **(10 pts.)** An arid-region soil, when it was first cleared for cropping, had a pH of about 8.0. After several years of irrigation, the crop yield began to decline, the soil aggregation tended to break down, and the pH had risen to 10. What is the likely explanation for this situation?

3. **(10 pts)** Oxidation of organic matter in soils follows different pathways in aerobic and anaerobic soils. What is the chemical element that is reduced in aerobic soils and what prevents the same reaction to take place in anaerobic soils?