CH3041 Tutorial 4 Terrestrial Chemistry

Name:

- 1. As a raindrop falls it readily absorbs soluble gases which increase in concentration inside the drop.
 - Calculate the concentration of aqueous **sulphur dioxide** in a **raindrop** that is in a parcel of air (just above sea-level) containing a gas-phase concentration of SO₂ of 3 ppm. The Henry's Law constant for SO₂ is 1.470 mol dm⁻³ atm⁻¹.
 - Explain how apparent aqueous SO₂ concentrations **higher** than those predicted by Henry's Law may be obtained.

2. Provide chemical formulae and structural diagrams for three common **silicate minerals**.

- 3. **Bowen's reaction series** is useful in predicting the ordering of mineral weathering.
 - Draw a sketch of Bowen's series with illustrative formulae for the minerals at each step.
 - What physical basis is behind the success of Bowen's series.

- 4. Define the following types of soils (a) a **sodic soil** (b) a **saline soil**.
 - What measurements would you carry out to confirm the nature of these soils.