Extended Response – Soil Acidity Practice Questions

Instructions

Read the excerpt from the article carefully, and use these questions to ensure you have understood the content in preparation for the validation.

Questions

1. Use the pH equation to prove that soil with pH 4.4 is 2.5 times more acidic than soil with pH 4.8.

2. a) What is the buffering capacity of soil?

   b) What types of soil have higher buffering capacity, and why?

3. a) Describe how soil pH is measured in a laboratory.

   b) How do pH values in water and in 0.01 M calcium chloride compare?

4. a) What effect does soil pH have on aluminium concentration in soil?

   b) How does aluminium in soil affect plant growth?

5. a) Describe the relationship between soil pH and calcium availability.

   b) Describe the relationship between soil pH and phosphorus availability.

   c) Describe the relationship between soil pH and copper availability.

6. Describe the effect of soil pH on microbial activity, and describe how this affects plant growth.

7. Describe how the use of ammonium fertilisers affects soil pH.

8. Explain how the production and export of crops can change soil pH.

9. State three main sources of lime used in WA, and describe how they were formed.

10. Give balanced equations for the reactions of the compounds listed below with acidified soil. Show state symbols, and show only the reacting species.
    a) calcium carbonate
    b) magnesium carbonate
    c) calcium oxide
    d) calcium hydroxide.

11. What is the term “neutralising value” used to describe?

12. Using collision theory, explain why lime with finer particles will neutralise acidified soil more quickly.