1. Describe the N assimilation procedures from nitrate to the first amino acid produced in plants, including the related enzymes and the organs or organelles where the reactions take place. (10 points)

2. Why graminaceous and dicotyledonous species differ in the requirements of calcium, boron and silicon? (10 points)

3. How does Cu deficiency affect pollen formation and development? (10 points)

4. Explain the following terms:
(a) Secondary metabolites (2 points). (b) Beneficial elements (2 points). (c) Nodulins (2 points). (d) Plant hemoglobins (2 points)
(e) Phytohormones (2 points). (f) Facilitated diffusion (2 points). (g) Molybdenosis (2 points). (h) Hill reaction (2 points)
(i) Natrophobic vs. Natrophilic (2 points). (j) Calcicole vs. Calcifuge (2 points)

5. What mineral elements will be limited when plants grow in calcareous soil and acidic soil? (10 points)

6. Auxin can be functioned as a plant growth regulator. Describe the beneficial roles of auxin in crop production. (10 points)

7. (a) Describe chemical formula of Gypsum and Lime (5 points); (b) Why Gypsum and Lime are important for crop growth and soil improvement? (5 points)

8. TTC test is widely used for analyzing root vitality. (a) What is the chemical name of TTC (5 points)? (b) What is the principle of TTC test (5 points)?

9. Explain the following terms: (a) Rubisco (5 points). (b) Phosphate degradation (5 points)

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