

題號： 311
科目： 植物營養學
節次： 3

國立臺灣大學 107 學年度碩士班招生考試試題

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※ 注意：請於試卷內之「非選擇題作答區」依序作答，並應註明作答之大題及小題題號。

1. (a) What is meant by the term “labile nutrients” in soils and “mobile nutrients” in plants? (4 points); (b) What conditions are conducive to shortages of magnesium in soils? (4 points)
2. (a) Why do plants use the nitrogen present in the soil but not from the air? (2 points); (b) What are the main pathways of nitrogen losses from the plant soil system, and how to minimize its losses? (8 points)
3. (a) State any two metabolic processes for which mineral nutrition is required by plants. (4 points); (b) Which micronutrients can affect the photosynthetic and mitochondrial electron transport in plants? (4 points)
4. (a) Which element is required for nodulation in legumes? (2 points); (b) In what forms are molybdenum (Mo), silicon (Si) and selenium (Se) taken up by plants? (6 points)
5. (a) How to determine the mineral nutrient requirements of plants? (6 points); (b) Briefly describe an experiment to determine the mineral nutrient requirements of a plant. (10 points)
6. Explain (a) Apparent free space (3 points); (b) Oxylophytes (3 points); (c) Photophosphorylation (3 points); (d) Nernst Potential (3 points)
7. Describe 3 experimental systems that can be used to study the functional properties of the membrane-transport proteins. (6 points)
8. What are Justus von Liebig’s (1803-1873) contributions to agriculture? (8 points)
9. Explain strategy I and strategy II uptake system of iron (Fe) in plants. (8 points)
10. What are biochemical functions of silicon in plants? (8 points)
11. Why soil acidity is harmful to crop production? (8 points)

試題隨卷繳回