

題號： 309

國立臺灣大學 108 學年度碩士班招生考試試題

科目： 植物營養學

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1. For long distance transport in plants, what are (a) the main substances in xylem and phloem? (5 points) (b) driving forces of substance movement in xylem and phloem; (5 points) (c) direction(s) of substance movement in xylem and phloem(5 points).
2. What are (a) Photorespiration (5 points); (b) Photoinhibition (5 points); (c) Calcium superphosphate (5 points).
3. Describe (a) the roles of **potassium** in plants (7 points). (b) potassium deficiency symptoms in plants (3 points).
4. What are the roles of **calcium** in plants (10 points).
5. (a) What is the difference between an essential element and a beneficial one? (7 points) (b) Which nutrients are obtained from the atmosphere by plants? (3 points)
6. (a) What are the conditions necessary for fixation of atmospheric nitrogen by *Rhizobium*? (5 points) (b) What is their role in nitrogen fixation? (5 points)
7. (a) What is the source of NH_4^+ in plant cells? (3 points) (b) Explain how NH_4^+ can be toxic to cells. (3 points) (c) How is that toxicity can be avoided? (4 points)
8. What soil conditions could lead to Mn and Mg deficiencies in plants? (10 points)
9. Explain the following terms. (10 points)
 - (a) Glutamine synthetase
 - (b) Glutamate synthase
 - (c) Nitrite reductase
 - (d) Phytosiderophore
 - (e) Halophyte

試題隨卷繳回