題號： 224　　國立臺灣大學 113 學年度碩士班招生考試試題

科目： 植物營養學

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※注意：請務必依照題號順序作答。

1. Describe the differences between "plant growth regulators" and "biostimulants". (10 points)
2. (a) Indicating three major components in phloem sap? (b) What is the driving force of pressure flow in phloem? (10 points)
3. What are the energy sources and the directions of ion transport for transporters, antiporters, and symporters? (10 points)
4. What are the mineral elements (in English) with the chemical symbols Cu, K, Mg, Mn, and Ni? (10 points)
5. Explain: (1) Photochemical quenching. (2) Antenna pigment. (3) Light compensation point. (4) PPFD (Photosynthetic photon flux density). (5) Photoinhibition. (10 points)
6. What conditions are necessary for the fixation of atmospheric nitrogen by *Rhizobium* (8 points), and what is their role in N-fixation? (2 points)
7. What mechanisms have been developed by plants to enhance the uptake of Fe? (6 points) What is the role of Fe in photosynthesis? (2 points) What iron species are taken up preferentially and transported long-distance in the xylem? (2 points)
8. In what ionic forms are the following minerals taken up by plants? (1) Phosphorus, (2) Zinc, (3) Cobalt, (4) Molybdenum, and (5) Sulphur (10 points)
9. What are the chemical formulas for the fertilizers: (1) Urea, (2) Ammonium phosphate, (3) Aqua ammonia, (4) Superphosphate, and (5) Sulphate of potash? (10 points)
10. Name the respective mineral nutrient element(s) that ..... (10 points)
    (1) Present in oxidoreductases, transferases, hydrolases, lyases, isomerases and ligases
    (2) Involves in photosynthesis respiration
    (3) Serves in the electron transport system linking photosystems I and II
    (4) Synthesis of the middle lamella of plant cell
    (5) Its deficiency causes a symptom referred to as "Mouse-ear"

試題隨卷繳回