

本試題是否可以使用計算機：可使用，不可使用（請命題老師勾選）

考試日期：0302，節次：3

1. Describe the major similarities between mitochondrial oxidative phosphorylation and photophosphorylation in the chloroplast? (10 points)
  
2. After very small viruses infect a plant cells by crossing its membrane, the viruses often spread rapidly throughout the entire plant without crossing additional membranes. Explain how this occurs. (10 points)
  
3. Gibberellins (GAs) could evoke a rapid initial cell growth response in a plant tissue. Provide a list of the sequence of events that proceed from the arrival of the hormone signal to the growth of the cell. (15 points)
  
4. How to isolate plant cell cycle-regulated genes? (15 points)
  
5. What are the advantages and disadvantages of using Arabidopsis T-DNA knock-out mutant for assaying genes and/or protein function? (15 points)
  
6. In a fertilizer analysis, what are the three critical nutrients (in order)? What are the roles of these three nutrients in plant growth and development? (15 points)
  
7. Fill-in the blanks (20 points)
  - A. The carboxylation reaction in a C3 plant is catalyzed by the enzyme \_\_\_(a)\_\_\_\_. The carboxylation reaction in a bundle sheath cell of a C4 plant is catalyzed by the enzyme \_\_\_(b)\_\_\_\_\_.
  
  - B. Phytochrome exists in two form; the \_\_\_(c)\_\_\_\_ form has an absorption maximum at 660 nm, while the \_\_\_(d) \_\_ form has peak absorbance at 730 nm.