

- 一、請舉出下列水果中那些是屬於非更年性果實。(10分)  
avocado、cherry、grape、grapefruit、longan、mango、passion-fruit、  
pineapple、pitaya、waxapple。
- 二、請說明下列果實生理病是何種因子所引起?(每小題 2 分共 10 分)  
(1) 蘋果苦豆病；(2) 番木瓜癌腫病；(3) 甜柿綠斑病；(4) 柑橘類石頭果；  
(5) 葡萄縮果症
- 三、台灣鳳梨釋迦產區集中於台東，冬季為主要產期，惟常發生採前落果 (pre-harvest drop) 之現象。試以栽培與生理觀點說明：為何栽培於台東南部之鳳梨釋迦較於台東北部者，更易發生採前落果?(10分)
- 四、寫出五種控制花卉作物株高方法及各方法操作時注意事項。(10分)
- 五、依據花卉作物實用分類法寫出下列花卉中文名稱。(每小題 1 分共 10 分)  
(1) Perennials herbaceous plant； (2) Annuals herbaceous plant；  
(3) Cacti plant； (4) Succulent plant； (5) Foliage plant；  
(6) Insectivorous plant； (7) Bulb； (8) Orchid；  
(9) Biennials herbaceous plant； (10) Ornamental tree and shrub
- 六、請根據花序生長點發育差異及排列形狀說明以下花卉作物，例如：菊花：無限花序：頭狀花序。(每小題 2 分共 10 分，如花序生長點發育差異錯誤，排列形狀則不給分)  
(1) 唐菖蒲； (2) 樟樹； (3) 棋盤腳； (4) 火鶴花； (5) 仙丹花
- 七、請解釋下列名詞並簡述其對蔬菜生長之影響：(每題 3 分共 15 分)  
(1) Light quality  
(2) Phototropin  
(3) Precipitation  
(4) Macronutrients  
(5) Vernalization
- 八、芹菜種子採收後於 20°C 黑暗下進行發芽試驗，發芽率為 30%，經半年貯藏，種子發芽率為 68%。經半年貯藏芹菜種子播種前進行二種處理：

- A. 浸於水中、置於 7°C 下 12 小時，取出，於(1)20°C 光照下種子發芽率可達 86%，發芽整齊度為 5.4 天，(2)於 30°C 黑暗下種子發芽率則為 0%；
- B. 以 PEG 進行滲調，滲調後種子(1)於 20°C 光照下種子發芽率可達 88%，發芽整齊度為 2.0 天，(2)於 30°C 黑暗下種子發芽率則為 65%，發芽整齊度為 3.5 天。請依據以上敘述芹菜種子發芽情形說明造成種子發芽行為變化之原因。(15 分)

### 九、英文翻譯

The balance between oxidative stress and antioxidant defense system was investigated in roots of the cold-sensitive and cold-tolerant sweet potato cultivars stored at 6 or 13 °C for 60 d. We hypothesized that the absence of chilling injury symptoms on cold-tolerant cultivars stored at 6 °C depends on the induction capacity of enzymatic and non-enzymatic antioxidant systems. The manifestation of chilling injury symptoms on cold-sensitive cultivars were associated with the loss of membrane integrity, increased lipid peroxidation, accumulation of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), and low catalase (CAT) and ascorbate peroxidase (APX) activities. In these cold-sensitive cultivars, proline and total phenolics increased with the progression of chilling injury, acting as markers for cold sensitivity, and parallel increased activity of phenylalanine ammonia-lyase. In contrast, constitutive levels of enzymatic and non-enzymatic antioxidants, as well as stress-induced increased CAT and APX activity played an important role in the detoxification of H<sub>2</sub>O<sub>2</sub> in the tolerant cultivars. Our results suggest that the balance between oxidative stress and antioxidant system is involved in the tolerance of cv. Beauregard to chilling injury.