一、請回答下列問題：(25%)

1. 請舉例說明 plesionecrosis 以及 holonecrosis 之意義。(5%)

2. 影響到植物病原地理分布的主要因子有哪些？了解植物病原的地理分布有何重要性？(5%)

3. 請說明溫度對植物病害發生之影響。(5%)

4. 請解釋 "antibiosis" 之意義。並舉例說明其在植物病害防治上之可能應用情形 (10%)

二、以下題目請分別標明題號，仔細作答：

1. Please explain **why** the following statements are **not true.** (2% each)
   (1) The disease cycle of a pathogen should correspond to its life cycle.
   (2) Facultative saprophytes live and thrive equally well on dead organic material and living plants.
   (3) The inoculum of most pathogens is carried passively to their hosts by wind.
   (4) In order to infect host plants as soon as possible, spores of soil-borne fungi germinate instantly after their maturation and release.
   (5) The function of haustoria, which may be produced by necrotrophic fungi such as *Botrytis cinerea*, is to increase the area of contact and attachment between the fungus and the host surface.
   (6) The extent and pattern of host colonization by a pathogen is correlated closely with the eventual severity of a disease.
   (7) In both healthy and diseased plants, the major metabolic pathway for production of pruvate is glycolysis.
   (8) True resistance is always controlled by genes located in the nucleus.
   (9) Based on the gene-for-gene theory, avirulence (*avr*) genes, which are usually recessive, play a key role in determining the host range of the pathogen solely at the species level.
   (10) Compared with horizontal resistance, vertical resistance has the advantage of showing complete resistance to a specific pathogen, and thus is the best choice for breeding of disease-resistant plants.

2. Please describe in details the key steps which will lead to establishment of a compatible interaction between a pathogen and its host plant. (5%)

接背面

三、請回答下列問題：

1. 請舉三例有關歷年傳入台灣地區的重大植物疫情，並描述其病原種類特徵及在植物上所造成的病徵、為害部位等。(15 分)
2. 請問田間作物發生萎凋病時，如何進行病害診斷？並就所知，說明各類病原導致植株萎凋的原因。(10 分)

四、請回答下列問題：

1. 植物醫學(Plant Medicine)與植物病理學(Plant Pathology)研究之範圍有何異同? (8%)
2. 若有三種防治芒果炭疽病之處方要進行田間試驗，擬各行五重複，試設計此一田間之實驗(9%)
3. 試舉台灣田間可見之四種空氣污染性病害，各包括污染物、作物及病徵(8%)