

系所別: 生命科學系 科目: 生理學

### Animal Physiology

1. Explain the mechanism of action of androgens and gonadotropins. (10%)
2. Define the term "insulin resistance". Explain the relationship between insulin resistance, obesity, and non-insulin-dependent diabetes mellitus. Explain how insulin secretion and glucagon secretion are influenced by (a) fasting, (b) a meal that is high in carbohydrate and low in protein. (15%)
3. Define the term "hypertension". Explain how antidiuretic hormone helps to regulate blood volume, plasma osmolality, and blood pressure. (10%)
4. Define the term "action potential". In general, what are the major neurotransmitters of sympathetic preganglionic fiber and postganglionic fiber and parasympathetic preganglionic fiber and postganglionic fiber? Compare the effects of sympathetic and parasympathetic stimulation on the cardiovascular system, digestive system, blood glucose levels, and penis. (15%)

### 植物生理學

1. 請寫出存在於植物體內之五大荷爾蒙，並簡單說明其對植物生理之影響 (15%)。
2. 請列出三項影響植物開花之環境因子，並簡述其對植物開花之影響為何 (10%)。
3. 植物種子在黑暗中發芽，會產生所為的白化現象 (etiolation)。請簡單敘述一下該現象之內容，以及此現象之生理功能 (10%)。
4. 請扼要列出 C3 植物和 C4 植物之間，其光合作用之固碳反應、固碳效能、及葉部型態解剖上的差別 (15%)。

參考用