

94 學年度\_生命科學院，生命科學院結構生物學程\_(所)\_甲組，甲組\_碩士班入學考試

科目\_\_ 生物學 \_\_科目代碼\_\_ 0802,1102 \_\_共\_\_一\_\_頁第\_\_一\_\_頁 \*請在試卷【答案卷】內作答

一、 問答題 (80%)，共八題、每題十分

1. How does DNA change over time? What kind of mutation has occurred in the DNA of people with sickle cell anemia?
2. What tools are in the biotechnology tool box? What is a cloning vector? How are cloning vectors used?
3. What assumptions did Hardy and Weinberg make when they derived their mathematical principle describing genetic equilibrium? What factors may prevent a population from reaching genetic equilibrium?
4. What characteristics are shared by all plants? What are the major divisions of plants? What distinguishes each division from the others?
5. Why do metabolic pathways have so many small steps instead of just one big step?
6. What is gametogenesis? How does it differ in males and females? How is it the same?
7. What four factors determine the size of a population? Which one(s) result in population increases? Which one(s) limit population size?
8. Describe the law of tolerances. How would you describe your tolerances for temperature, light, available water, and available energy?

二、 解釋名詞 (20%) (每題兩分)

1. Antibiotics
2. Binary fission
3. Carnivores
4. carrying capacity
5. Genetic diversity
6. Metamorphosis
7. Parathyroid glands
8. Stabilizing selection
9. Transformation
10. Macrophages