

國立高雄師範大學九十二學年度碩士班招生考試試題

系所別：科學教育研究所

科 目：生物學（共 1 頁，第 1 頁）

- 一、請說明植物生長調節劑（PGRs）Auxin 對植物各器官生長發育之影響。（15%）
- 二、請以植物生理學家 Henry Dixon 之內聚力—張力理論（cohesion-tension theory），解釋水如何由土中上升至大樹頂端。（10%）
- 三、試比較植物光合作用（photosynthesis）之光反應作用中，循環式與非循環式的電子流動方式有何差異。（10%）
- 四、試簡述細胞週期（cellcycle）各個時期進行之調控模式。（15%）
- 五、Which type of cell would probably provide the best opportunity to study lysosomes? Explain your answer. (10%)
a. muscle cell b. nerve cell c. phagocytic white blood cell d. leaf cell of a plant e. bacterial cell.
- 六、A black pig crossed with an albino guinea pig produced 12 black offspring. When the albino was crossed with a second black one, 7 blacks and 5 albinos were obtained. What is the best explanation for this genetics situation? Write genotypes for the parents, gametes, and offspring. (10%)
- 七、Compare and contrast bats and birds, two flying vertebrates, in as many ways as you can. (10%)
- 八、Compare and contrast the transport of xylem sap and phloem sap. Your discussion should include the roles of water potential and bulk flow, the pathways by which solutes reach the vascular tissue, the processes that generate the forces driving the transport, and the factors that determine the direction of transport. (10%)
- 九、Suggest your own hypothesis to explain the inverse relationship between body size and metabolic rate per gram of tissue. How could you test your hypothesis? (10%)