

- 一、Explaining the biological terms
 1. Patchiness (2%)
 2. Greenhouse effect (3%)
 3. Biological magnification (3%)
 4. Altruism (3%)
 5. Optimal foraging (3%)
 6. ecological succession (3%)
- 二、Please describe the difference in the form of excretion the nitrogenous wastes among the terrestrial, aquatic and marine animals, and why they are so different? (9 points)
- 三、How many reproductive modes does animal has? Please describe in detail and explain the advantage and disadvantage of these modes. (8 points)
- 四、Define these terms: promoter, operator, repressor protein, and activator protein. (12%)
- 五、Define genetic code. Is the same basic genetic code used for protein synthesis in all living organisms? (5%)
- 六、What are the differences between bottle neck effect and founder effect in evolutionary processes, and which is more important for speciation process? (10%)
- 七、What is body segmentation in evolutionary development, and what marine animal phyla have evolved body segmentation? (6%)
- 八、Please show three kinds of vegetative (asexual) reproduction in plants. Explain the advantages vegetative reproduction has over sexual reproduction. Also briefly describe the advantages of sexual reproduction. (7%)
- 九、Please write a short paragraph in **English** describing three ways in which plants depend on bacteria for their supply of nitrogen. (10%)
- 十、How do mitochondria, smooth ER, and the cytoskeleton cooperate in contraction of a muscle cell? (6%)
- 十一、Describe the various functions performed by proteins in a cell. (10%)