

**Each of the following four questions counts for 30%. However, the maximal total grade is 100%. (每題滿分為30分，但總分至多為100分)**

1. "Homeostasis" is a basic feature in physiology as well as in cell biology. Please i) define the basic characteristics of a homeostatic control system, and ii) use two examples (one in the organism level and the other in the cellular level) to illustrate how this kind of control system maintains the survival of an organism or a cell.
2. A scientific paper typically contains the following parts: title, abstract, introduction, materials and methods, results, discussion, and references. Please i) describe the major purpose for each of these parts, and ii) explain why they are usually arranged in such a way in a paper.
3. A cell or an organism usually has a limited, though very different, life span. Please i) list two possible factors (one in the cellular level and the other in the organism level) for limiting the life span, and ii) give two examples to explain why the normal life spans in some cells or organisms are very long and yet in others are very short.
4. Scientists usually use model organisms or cells to investigate the fundamental questions in life sciences. However, these model organisms or cells appear very different from one another in many ways. Please i) explain why one can study them to get the answers or clues they look for, and ii) list two commonly used model cells and two model organisms, and explain why they are well-liked by many scientists.