國立嘉義大學九十四學年度

農業生物技術研究所碩士班招生考試試題

科目：專業英文

1. A. 請將下段英文翻譯成中文。(15 分)

The wild-type worm ages rapidly, undergoing development, senescence, and death in less than 2 weeks. In contrast, mutants with reduced activity of a specific gene age slower than normal and live more than twice as long.

B. 請將下段中文翻譯成英文。(10 分)

將樣品混合均勻，置於冰上反應 10 分鐘之後，再以 10000 rpm 的速度，離心 15 分鐘。

2. 請將下段英文翻譯成中文。(25 分)

Title: Regulation of the *Arabidopsis* defense transcriptome

Transcriptional re-programming is a key step of plant defense in response to pathogen recognition. Microarray analyses combined with genetic and biochemical approaches are now enabling us to study basic principles and details of regulatory mechanisms controlling the defense transcriptome in *Arabidopsis*. Recent results show that signaling pathways used by different defense systems converge and target overlapping gene sets. Furthermore, a quantitative mechanism common to multiple defense systems modulates transcript levels of these defense-associated genes. Most importantly, some transcription factors have been proven to play a pivotal role in disease resistance. Regulatory circuits linking signaling and gene regulation are emerging, suggesting that a complex interplay of transcriptional activators and repressors fine-tunes expression of the defense transcriptome.

3. 請將下二段英文翻譯成中文。(25 分)

Public health measures have resulted in the fortification of widely distributed foods (such as milk and wheat flour) with specific nutrients. This practice has evolved in developed countries into the fortification of all kinds of foods by food manufacturers, giving rise to a new generation of functional foods. Genetic modification of crop plants with specific nutrients joins this trend. Such a development could help alleviate nutritional deficiencies in developing countries. Vitamin A-rich Golden Rice is a typical example.

The production of GM crops for human consumption is subject to strict governmental controls. Despite such controls, substantial segment of the population in some countries opposes GM foods. This opposition is based in part on the perception that some risk may be associated with eating GM foods. Social scientists are beginning to study the public's perception of risk, which biotechnology companies must address.

4. 請將下段英文翻譯成中文。(25 分)

Plasmids are self-replicating, double-stranded, circular DNA molecules that are maintained in bacteria as independent extrachromosomal entities. Virtually all bacterial genera have plasmids. Some plasmids carry information for their own transfer from one cell to another (F plasmids), others encode resistance to antibiotics (R plasmids), others carry specific sets of genes for the utilization of unusual metabolites (degradative plasmids), and some have no apparent functional coding genes (cryptic plasmids). Plasmids can range in size from less than 1 kb to more than 500 kb. Each plasmid has a sequence that functions as an origin of DNA replication; without this site, it cannot replicate in a host cell.