

# 大同大學 九十四 學年度研究所碩士在職班入學考試試題

考試科目:科技英文

所別:生物工程研究所

第全頁

註:本次考試 不可以參考自己的書籍及筆記; 不可以使用字典; 不可以使用計算器。

1. Appropriate design and layout of the pharmaceutical (製藥的) facility is an issue central to the production of safe, effective medicines. In common with many other manufacturing facilities, contain specific production, quality control (QC) and storage areas, etc. However, certain aspects of facility design and operation are unique to this industry, in particular with regard to manufacturers of parenteral (注射式) products. (20%)
2. Ideally, lab-on-a-chip (實驗室晶片) performs all the necessary steps in a typical biochemical analysis. It integrates sample preparation, signal detection, and even data analysis into a single device. It has several advantages including ease-of-use, faster processing speed, smaller sample volume, and low operation cost. Individual components for such devices have been reported in literature. However, fully integrated devices are rarely seen. (20%)
3. Nanotechnology (奈米科技) has become one of the hottest research topics since only a decade ago. Nevertheless, the very concept of nanotechnology was proposed in 1960 by Nobel laureate Richard Feynman. Many people today consider Dr. Feynman's classic speech as the birth of nanotechnology. He argued that if we could find ways to control and manipulate atoms, amazing things such as storing all the information that mankind ever produced in a dust particle is indeed feasible. (20%)
4. In both prokaryotic (原核的) and eukaryotic (真核的) cells, complex mechanisms regulate the amount of proteins synthesized. The cell usually synthesizes only what is required and thus highly regulates the production of products. In both prokaryotes and eukaryotes, transcription (轉錄) initiation (turning a gene on or off) is a major control point, and proteins bind to specific DNA sequences (序列) to control transcription. However, in eukaryotes there are more regulatory proteins and DNA control sequences, as well as many more control points after transcription. (20%)
5. Numerous microbial enzymes produced by recombinant (重組) DNA technology and fermentation are now used in food processing. For example, the first commercial food product produced by biotechnology was a microbial enzyme used in making cheese. At one time the enzyme had to be extracted from the stomach of calves and lambs—now the recombinant protein is produced by microorganisms through industrial fermentation. The food industry now uses more than 55 different enzymes in food processing alone. The number is increasing as new microorganisms and their enzymes are identified, and recombinant DNA technology is used to manipulate these microorganisms (微生物) and enzymes. (20%)