



國立臺灣海洋大學一〇〇學年度研究所碩士班暨碩士在職專班入學考試試題

考試科目：科技英文

系所名稱：食品科學系碩士班食工組

1. 答案以橫式由左至右書寫。2. 請依題號順序作答。

1. (30%) 字彙: 請依序解釋下列劃底線單字(或名詞)

Supercritical fluids (SCFs) are substances at pressures and temperatures above their critical¹ values. Their solvent² power is the highest for non-polar or slightly polar components and decreases with increasing molecular weight³. They can easily be removed from the solutes⁴ by mere expansion to ambient⁵ pressure. Carbon dioxide (CO₂) is particularly advantageous⁶ for processing food materials. SCFs are used for batch extractions⁷ of solids, for multi-stage counter-current separation⁸ (fractionation) of liquids, and for adsorptive and chromatographic separations. State of the art design for commercial⁹ plants is available, and a number of installed plants are working. Special applications to food processing¹⁰ include decaffeination of green coffee beans, production of hops extracts, recovery of aromas¹¹ and flavors from herbs and spices, extraction and fractionation of edible¹² oils, and removal of contaminants¹³, among others. Costs of SCF extraction (SCFE) processes are competitive¹⁴. In certain cases SCFE processing is the only way to meet product specifications¹⁵.

2. (30%) 翻譯: 請將下列文章整段翻譯成中文(勿逐字翻譯)

- a) There have been multiple outbreaks of foodborne illness involving peanut butter products. This study looks at the potential use of high-pressure processing to reduce the bacteria that may be in peanut butter.
- b) The weight of Alaskan Pollock can be predicted automatically by taking the image of the fish and using it in one of the correlations developed in this study. The removal of the fins or the fins and the tail did not increase the prediction accuracy of the method. Therefore, intact fish images should be used.
- c) A membrane, which impedes the passage of a low-molecular-weight solute, is placed between a solute-solvent solution and a pure solvent. The solvent diffuses into the solution by osmosis.

3. (30%)問答: 請根據文意, 回答相對應問題

An important example of the liquid permeation process is dialysis with an artificial kidney in the biomedical field. In this application for purifying human blood, the principal solutes removed are the small solutes urea, uric acid, creatinine, phosphates, and excess amounts of chloride. A typical membrane used is cellophane about 0.025 mm thick, which allows small solutes to diffuse but retains the large proteins in the blood. During the hemodialysis, blood is passed on one side of the membrane while an aqueous dialyzing fluid flows on the other side. Solute such as urea, uric acid, NaCl, and so on, which have elevated concentrations in the blood, diffuse across the membrane to the dialyzing aqueous solution, which contains certain concentrations of solutes such as potassium salts, and so on, to ensure that concentrations in the blood do not drop below certain levels. In one configuration the membranes are stacked in the form of a multilayered sandwich, with blood flowing past one side of the membrane and dialyzing fluid past the other side. The hollow fiber type is used quite often.

- a) 何謂 hemodialysis?
- b) NaCl 怎麼移動(向甚麼方向)?
- c) 鉀鹽存在目的為何?

4. (10%)中翻英: 請以英文表達下列意思

- a) “影響冷凍食品品質最重要的因素就是儲藏溫度的變動”
- b) “以微波加熱食品較之傳統加熱方式有若干優勢”