

Cork Institute of Technology
Bachelor of Science in Food Science and Technology - Award
December 2004
Bioprocessing
(Time: 3 Hours)

Instructions to candidates:
Answer Six questions
Answer Two questions from Section A
Answer Two questions from Section B
Answer Two questions from Section C
Use separate answer books for each Section.
All questions carry equal marks.

Examiners: Mr. M. Hickey
Mr. E. Fitzgerald
Dr. D. Gilroy
Mr. B. Walsh

Section A

- Q1. (i) Describe two sources of carbon used for Industrial fermentations. (4 marks)
- (ii) Outline a generalised method for the processing and distribution of water for injection in a biopharmaceutical facility. (6 marks)
- (iii) Discuss the properties of the gases used for Modified Atmospheric Packaging of foodstuffs and their effects on product quality. (10 marks)

- Q2. Describe, with the aid of diagrams, the principle and applications of the following techniques:

Electrodialysis

Centrifugation

Supercritical fluid extraction

Reverse osmosis

(20 marks)

- Q3. (i) Briefly describe the processing steps and ingredients used for the production of three of the following food products: -

(a) Cooked ham

(b) Bread

(c) Fermented sausages

(d) Soft drinks

(e) Black tea

or

- (ii) Write an essay on food irradiation. (20 marks)

Section B

- Q4. Write short notes on three of the following:
- (a) Soft fruit production
 - (b) Deer farming
 - (c) Shellfish farming
 - (d) Egg production
 - (e) Wheat production
- (20 marks)
- Q5. Discuss the importance of fast freezing and constant temperature of frozen storage on the quality and viability of frozen foods and biological samples. (20 marks)
- Q6. Outline the considerations which should be assessed when siting and designing a processing plant. Use a specific product example to illustrate your answer. (20 marks)

Section C

- Q7. Outline the role of microorganisms in the production of fermented foods. (20 marks)
- Q8. Discuss the manufacture of any cheese product with which you are familiar. (20 marks)
- Q9. Describe the brewing process using diagrams to illustrate your answer. (20 marks)