

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2010/11

Module Title: Introduction to Bioprocessing (CA)

Module Code: BIOL 6022

School: Biological Science

Programme Title: Bachelor of Science in Applied Biosciences – Year 2
 Bachelor of Science (Honours) in Nutrition and Health Science
 Bachelor of Science (Honours) in Pharmaceutical Biotechnology

Programme Code: **SBIOS_7_Y2**
 SNHSC_8_Y1
 SPHBI_8_Y1

External Examiner(s): Dr. Don Faller
Internal Examiner(s): Ms. Anna Murphy

Instructions: Answer Question 1 and three other questions.

Duration: 2 Hours

Sitting: Autumn 2011

Requirements for this examination:

Note to Candidates: Please check the Programme Title and the Module Title to ensure that you have received the correct examination paper.
If in doubt please contact an Invigilator.

- Q1. (a) Describe in detail a titration method for the determination of ascorbic acid in a fruit juice or vegetable. (15 Marks)
- (b) Describe briefly the principles of the Gerber Test for the determination of fat in milk or cream. (10 Marks)
- Q2. (a) Write a brief note on the pasteurisation and homogenisation stages involved in the processing of liquid milk for commercial sale. (8 Marks)
- (b) Distinguish between Primary, Secondary and Tertiary Packaging to include one example of each. (9 Marks)
- (c) Describe briefly the function of the main additives used in cheese production. (8 Marks)
- Q3. (a) Write a brief note on the applications of genetic engineering in the food industry to include the legal requirements in relation to labelling of genetically engineered foods. (9 Marks)
- (b) List the main factors that need to be considered when selecting a packaging material for a product. (8 Marks)
- (c) Write a brief note on the production of **two** of the following colloids:
- (i) Emulsion
 - (ii) Gel
 - (iii) Foam
- (8 Marks)
- Q4. (a) Write a note on **four** of the following preservation methods to include an example of a food preserved by each method:
- (i) Spray Drying
 - (ii) Modified Atmosphere Packaging
 - (iii) Freeze Drying
 - (iv) Irradiation
 - (v) Immersion Freezing
- (16 Marks)
- (b) Describe briefly how deterioration in the quality of fruit and vegetables can be minimised after harvesting. (9 Marks)

- Q5. (a) Write a brief note on the following areas in relation to meat quality and meat production.
- (i) Pickle Cure
 - (ii) Specified Risk Material and BSE control
 - (iii) Humane Stunning Methods
 - (iv) Effect of Pre-slaughter stress on meat quality (15 Marks)
- (b) State the main advantages and disadvantages of using glass as a packaging material. (10 Marks)
- Q6. (a) The fat content of 7200kg of milk needs to be reduced from 3.5% to 3.2%. How much cream containing 37% fat should be removed from the milk to lower the fat content? (10 Marks)
- (b) Write a brief note on a medical device company in Ireland that you are familiar with to include examples of medical devices produced by the company. (8 Marks)
- (c) State briefly why temperature control is important during the drying of foods. (7 Marks)