

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Autumn Examinations 2013/2014

Module Title: Biomanufacturing Science

Module Code: BIOL8012

School: Science and Informatics

Programme Title: BSc in Nutrition and Health Science

Programme Code: SNHSC_8_Y4

Internal Examiner: Dr. Máire Begley

External Examiner: Prof. Torres Sweeney

Instructions: Answer **Q1** and **two** other questions.

Q1 is worth 40 marks. All other questions carry equal marks (30 marks).

Duration: 2 hours

Sitting: Autumn 2014

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. COMPULSORY QUESTION

Write comprehensive notes on **four** of the following:

- (a) Food extrusion.
- (b) Potential applications of bacteriocins in the food and pharma industries.
- (c) Active food packaging.
- (d) Design of a sensory evaluation facility/lab.
- (e) Plant genetic engineering for biofuel production.
- (f) Methods for the detection of genetically modified organisms.

(4 x 10 marks)

Q2.

- (a) A genetically modified (GM) potato trial is underway by Teagasc in Oakpark in Carlow. Explain how the potatoes were genetically modified. **(6 marks)**
- (b) Outline some of the concerns raised by opposers of the Teagasc GM potato trial. **(8 marks)**
- (c) Discuss with the aid of specific examples the benefits and controversies surrounding GM products. **(16 marks)**

Q3.

Write a comprehensive account of a non-thermal food processing method of your choice. In your answer describe the process, state what foods the process is suitable for and outline the advantages and disadvantages of the method.

(30 marks)

Q4.

- (a)** Explain what retention factors are. **(4 marks)**
- (b)** Explain what antinutrients are and give examples. **(6 marks)**
- (c)** Outline the affects that heat can have on the nutrient content of foods. **(6 marks)**
- (d)** Explain what excipients are and outline the main reasons that they are used in the pharmaceutical industry. **(8 marks)**
- (e)** Describe 3 different types of stability tests that pharmaceutical manufacturers can perform on their products. **(6 marks)**