CORK INSTITUTE OF TECHNOLOGY

INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Winter Examinations 2015

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: Dr Eibhlís O'Connor

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

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

Duration: 2 hours

Sitting: Winter 2015

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. COMPULSORY QUESTION

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

(a) Potential applications of bacteriocins in the food and pharma industries.
(b) Pulsed Electric Field (PEF) processing.
(c) Excipients in pharmaceuticals.
(d) Possible sources of error associated with human sensory evaluation panels.
(e) Modified atmosphere packaging of meat.
(f) Methods for the detection of genetically modified organisms.

(4 x 10 marks)

Q2.

(a) Explain how foods are processed using High Pressure Processing (HPP) and list the applications of HPP in various food sectors. **(8 marks)**
(b) Explain how HPP affects food quality and safety. **(8 marks)**
(c) Outline the advantages of HPP to food manufacturers and to the consumer. **(8 marks)**
(d) Outline the key challenges that may prevent the widespread use of HPP in commercial settings. **(6 marks)**

Q3.

(a) Outline the changes in consumers' requirements in recent years and explain how the food industry has reacted. **(8 marks)**
(b) Explain with the aid of a diagram what hurdle technology is. **(8 marks)**
(c) Explain what food extrusion is and outline how it affects nutrients in foods. (**14 marks)**

Q4.

(a) Explain with the aid of a specific example how plants can be genetically modified to increase their resistance to insects. **(12 marks)**
(b) Outline with the aid of specific examples the concerns of objectors to transgenic crops. **(12 marks)**
(c) Explain how plant genetic engineering offers potential for affordable biofuel production. **(6 marks)**