

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Winter Examinations 2012

Module Title: Biomanufacturing Science

Module Code: BIOL8012

School: Science and Informatics

Programme Title: BSc (Hons) in Nutrition and Health Science
BSc (Hons) in Herbal Science

Programme Code: SNHSC_8_Y4
SHERB_8_Y4

Internal Examiner: Dr Máire Begley
External Examiner: Dr Julia Green, 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: Winter 2012

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 short notes on **four** of the following:

- (a) Food extrusion.
- (b) High pressure processing (HPP).
- (c) Hurdle technology.
- (d) Modified atmosphere packaging of meat.
- (e) Methods for the detection of genetically modified organisms (GMOs).
- (f) Plant genetic engineering for biofuel production.

(4 x 10 marks)

Q2

"Bacteriocins are bacterial solutions to bacterial problems". Discuss this statement and include at least two different examples of the potential applications of bacteriocins in the food industry.

(30 marks)

Q3.

Sensory evaluation is important in the food industry.

- (a) Explain what sensory evaluation is. **(4 marks)**
- (b) List four uses of sensory evaluation in industry. **(4 marks)**
- (c) Describe the facility design required to carry out sensory evaluation analyses. **(10 marks)**
- (d) Describe three different types of sensory evaluation tests. **(12 marks)**

Q4.

Write an essay on packaging. In your answer describe at least five functions of packaging, and explain with the aid of specific examples what active packaging and intelligent packaging are.

(30 marks)

Q5.

(a) Describe three specific applications of genetically modified plants in agriculture.

(12 marks)

(b) Describe two specific examples of the applications of transgenic plants in biopharming.

(10 marks)

(c) Outline the benefits and controversies of genetically modified products.

(8 marks)

Q6.

(a) Explain what excipients are and describe the reasons that they are used in the pharmaceutical industry.

(8 marks)

(b) Name 4 different excipients used in pharmaceuticals and state their functions.

(8 marks)

(c) It is important that manufacturers perform stability studies on pharmaceuticals. Explain what is meant by stability and describe 3 different types of stability tests that should be performed.

(8 marks)

(d) Define bioavailability and explain how drug formulation can affect bioavailability.

(6 marks)