

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Autumn Examinations 2011

Module Title: Food and Healthcare Biotechnology (CA)

Module Code: BIOL7010

School: Biological Science

Programme Title: Bachelor of Science in Food Science and Technology – Year 3
Bachelor of Science (Honours) in Nutrition & Health Science – Year 3

Programme Code: SFSTE_7_Y3
SNHSC_8_Y3

External Examiner(s): Dr Don Faller, Dr Alison Gallagher

Internal Examiner(s): Dr Helena Stack

Instructions: Answer three questions in total. Question 1 is compulsory.
All questions carry equal marks.

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.

Answer **three** questions in total. **Question 1 is compulsory.**

- Q1. (a) Define genetic engineering (recombinant DNA technology). (4 Marks)
- (b) Outline the steps and tools of recombinant DNA technology that are involved in the cloning of a gene of interest into another host cell. (16 Marks)
- Q2. Microbial cells as sources of bioproduct formation in industrial fermentation processes. Discuss. (20 Marks)
- Q3. (a) Write an account of :
Batch fermentations
Continuous fermentations
Immobilized enzymes (12 Marks)
- (b) List and briefly explain the four factors affecting bioreactor design. (8 Marks)
- Q4. Write a detailed account of the process involved in the commercial production of beer. (20 Marks)
- Q5. (a) Explain what is meant by the terms 'Traditional Biotechnology' and 'Modern Biotechnology'. (5 Marks)
- (b) Write a detailed account of a modern industrial biotechnology process you have studied. (15 Marks)