

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2012

Module Title: Applied Biotechnology

Module Code: BIOT7001

School: Biological Science

**Programme Title: Bachelor of Science (Honours) in Pharmaceutical Biotechnology – Year 2
Bachelor of Science in Applied Bioscience & Biotechnology – Year 3**

**Programmes Code: SPHBI_8_Y2
SBIBI_7_Y3**

External Examiner(s): Dr Jerry Bird, Dr Don Faller

Internal Examiner(s): Dr. Rosemary Rea, Dr. Jim O'Mahony

Instructions: Answer **question 1** and **2** other questions. All questions carry equal marks.

Duration: 2 hours

Sitting: Autumn 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.

Question 1

From a laboratory perspective describe a strategy for the following:

- Identification of an anti-microbial producing strain **(10 marks)**
- Preliminary quantification of potential anti-microbial **(10 marks)**
- Stability assessment of potential antimicrobial **(10 marks)**

Question 2

Describe in detail using insulin as an example your understanding of the term “protein engineering”
(30 marks)

Question 3

Discuss monoclonal antibodies using the following headings:

- Differences from polyclonal antibodies **(5 marks)**
- Production strategy **(10 marks)**
- Advantages and disadvantages **(6 marks)**
- Overcoming Human Anti-Murine Antibody (HAMA) responses. **(9 marks)**

Question 4

Discuss the importance of traditional and recombinant DNA vaccines. **(30 marks)**

Question 5

A. Describe using specific examples of how biotechnology can be used to limit the environmental impact of farming. **(20 marks)**

B. Describe a strategy for the production of heterologous proteins in transgenic animals. **(10 marks)**