

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2013/14

Module Title: Applied Biotechnology CA

Module Code: BIOT7001

School: Science

**Programme Title: BSc in Pharmaceutical Biotechnology
BSc in Applied Biosciences with Biotechnology**

**Programme Code: CR_SPHBI_8
CR_SBIBI_7**

**External Examiner(s): Dr. Tom O'Connor
Internal Examiner(s): Dr. Rosemary Rea**

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

Duration: Time = 2 hours

Sitting: Autumn 2014

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.** Provide an overview of a laboratory based strategy for the following:
- High throughput testing of the antimicrobial producing ability of selected isolates **(25 marks)**
 - Determining nature of putative anti-microbial compound i.e. small chemical versus peptide **(25 marks)**
- Q2.** (a) Discuss the primary cause and consequences of misfolding of the cystic fibrosis transmembrane conductance regulator protein **(15 marks)**.
- (b) Discuss the four basic tools required for engineering cells **(35 marks)**.
- Q3.** (a) Describe the use of the DHFR (Dihydrofolate Reductase) expression system for production of human proteins by Chinese Hamster Ovary cells in vitro **(40 marks)**.
- (b) Define and list the advantages and disadvantages of monoclonal antibodies **(10 marks)**.
- Q4.** (a) Discuss protein engineering using the insulin hormone as an example **(34 marks)**.
- (b) Describe how Bt corn can be used to limit the environmental impact of farming **(16 marks)**.