

**CORK INSTITUTE OF TECHNOLOGY**  
**INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

**Semester 1 Examinations 2012**

**Module Title:     Analytical Microbiology**

**Module Code:        BIOM7001**

**School:                Science & Informatics**

**Programme Title:**

Bachelor of Science in Applied Bioscience with Biotechnology – Year 3  
Bachelor of Science (Honours) in Pharmaceutical Biotechnology – Year 3  
Bachelor of Science in Analytical and Pharmaceutical Chemistry – Year 3  
Bachelor of Science (Honours) in Analytical Chemistry with Quality Assurance – Year 3

**Programme Code:    SBIBI\_7\_Y3**  
**SPHBI\_8\_Y3**  
**SCHEM\_7\_Y3**  
**SCHQA\_8\_Y3**

**External Examiner(s):     Dr Gillian Gardiner**

**Internal Examiner(s):     Dr Brigid Lucey**  
**Dr Monika Koziel**

**Instructions:**            Answer 3 questions, one from section A, one from Section B, and the remaining question from either A or B. Each question carries equal marks.

**Duration:            2 Hours**

**Sitting:                Semester 1 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.

## Section A

- Q1. The rigorous regulation of manufacturing procedures in the pharmaceutical industry is assisted by the availability of cleanroom standards for microbiological testing. Discuss the accuracy of this statement, giving specific examples of where standards are used, to illustrate your answer. (33 Marks)
- Q2. There are a number of strategies employed in industry to ensure sterile manufacture. Discuss **three** of these strategies in detail. (33 Marks)

## Section B

- Q3. (a) Give an account of the microbiological differentiation of *Pseudomonas* spp. and pseudomonas-like organisms from members of the family Enterobacteriaceae in the laboratory. (10 Marks)
- (b) Discuss a situation which *Burkholderia* spp. might be seen as:
- (i) environmentally helpful (13 Marks)
- and
- (ii) as human pathogens. (10 Marks)
- Q4. (a) Outline why *Salmonella* spp. are determined to be an important genus to be able to isolate and identify fully in the microbiology laboratory. (10 Marks)
- (b) Give an account of the **methods** currently used to:
- (i) isolate, (10 Marks)
- (ii) identify (7 Marks)
- and
- (iii) type *Salmonella* spp. (6 Marks)