

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2011

Module Title: Analytical Microbiology

Module Code: BIOM 7001

School: Science

Programme Title: Bachelor of Science in Applied Bioscience & Biotechnology – Stage 3

Programme Code: SBIBI_7_Y3

External Examiner(s): Dr Don Faller

Internal Examiner(s): Dr Brigid Lucey

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: 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.

Section A

Q1. In cleanroom technology:

- (a) Explain the principle of the laminar flow cabinet, and discuss the different designs of cabinet that may be required within cleanrooms, and the reasons for these.
- (b) List the services required for cleanrooms, and outline how these are provided to the cleanroom while minimising risk of contamination.
- (c) Restricted access barrier systems are often used in cleanrooms. Explain why these are used and how they work.

Q2. Write an essay on key microbiological considerations for the pharmaceutical industry, and outline the principal strategies used to ensure sterile manufacture of products.

Section B

Q3. Outline the principle of the BACTEC™ 9000 instrument used for the detection of microbes in food products. Describe how you would investigate a positive sample.

Q4. Write a detailed account of *Staphylococcus aureus*. In your answer include an account of

- (a) Reservoirs
- (b) Virulence factors
- (c) The principle behind TWO selective agars used for its isolation
- (d) The basis for TWO biochemical tests often used to confirm this organism's identity