

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2015/16

Module Title: Analytical Microbiology
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Module Code: **BIOM7001**

School: Science

Programme Title: BSc in Applied Bioscience with Biotechnology – Stage 3
 BSc (Hons) in Pharmaceutical Biotechnology – Stage 3
 BSc in Analytical and Pharmaceutical Chemistry – Stage 3
 BSc (Hons) in Analytical Chemistry with Quality Assurance – Stage 3

Programme Code: **SBIBI_7_Y3; CR_SPHBI_8_Y3; CR_SCHEM_7; CR_SCHQA_8.**

External Examiner(s): Dr Brendan O'Donnell

Internal Examiner(s): Dr Brigid Lucey
 Ms Richenda Kiernan

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 2016**

Requirements for this examination:

<p>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.</p>
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Section A

Q1. Cleanrooms have applications in a variety of settings.

- (a) Discuss this statement, giving an indication of their importance in each of FOUR individual settings. (8 Marks)
- (b) Show, with the aid of a clearly labelled diagram, the typical design of a cleanroom. Include an indication of direction of airflow in your diagram. (13 Marks)
- (c) Give an account of the variety of cabinet equipment used in cleanroom settings (12 Marks)

Q2. (a) Discuss the diversity of culture media used in microbiology, and the reasons why this is the case, using specific examples (15 Marks)

(b) Outline the importance of quality control of culture media (6 Marks)

and

(c) describe methods used to certify fitness for purpose (12 Marks)

Section B

Q3. Describe with the aid of a **clearly labelled diagram**, an algorithm (a scheme) for which tests to use in (a) the differentiation of streptococci from staphylococci and (b) the identification of these organisms to species level

Include microscopic and macroscopic characteristics in your answer. (33 Marks)

Q4. Describe **three** of the following, giving the principle and a typical use for each. Each is worth equal marks:

- (a) The spiral plater
- (b) A latex agglutination kit
- (c) The stomacher
- (d) The magnetic bead enrichment system (e.g. the Dynabead system)
- (e) Fluorescence in situ hybridization

(33 Marks)