

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Semester 1 Examinations 2016/17

Module Title: Analytical Microbiology

Module Code: BIOM7001

School: Science & Informatics

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: Winter 2016 (Semester 1)

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. If in doubt please contact an Invigilator.

Section A

Q1. List and discuss microbiological considerations in the pharmaceutical industry as they relate to

(a) Cleanrooms and their successful operation

(16 Marks)

(b) Methods for sterility testing

(17 Marks)

Q2. (i) The use of spiral platers has removed the necessity of using serial dilution methods in microbiology. Discuss this statement fully, indicating the principle of spiral platers and how and why they are used, contrasting this method with the serial dilution methods.

(16 Marks)

(ii) Every method in microbiology requires the use of a standard operating procedure document. Give an indication of the layout of a typical standard operating procedure, with the aid of a clearly-labelled diagram. Use your laboratory procedure of choice to help to illustrate this document further.

(17 Marks)

Section B

Q3 (i) Give an account of the importance of *Bacillus cereus* in human infection, including its reservoirs and the diseases caused.

(18 Marks)

(ii) Describe a method for isolation of *B. cereus* from a food sample.

(15 Marks)

Q4. Describe or discuss THREE of the following five short questions (each short question carries equal marks):

(i) The principle and use of DNase Agar

(ii) The preparation of Blood Agar

(iii) The laboratory isolation of *Salmonella* spp.

(iv) A flow diagram to show how to identify Gram-positive cocci to species level

(v) The isolation and identification of *Campylobacter* spp.

(33 Marks)