

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Autumn Examinations 2014

Module Title: Analytical Microbiology
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Module Code: **BIOM 7001**

School: Science

Programme Title:

Bachelor of Science in Applied Bioscience & Biotechnology – Year 3

Bachelor of Science (Honours) in Pharmaceutical Biotechnology – Year 3

Bachelor of Science in Analytical & 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, Ms 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: Autumn 2014

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. Pharmaceutical industry is strictly regulated.

- (i) The pharmaceutical industry of the European Union maintains high standards of quality assurance. Give a brief account of some of the areas in which quality assurance is important. (12 Marks)
- (ii) The International Organisation for Standardisation (ISO) has produced a number of standards that relate directly to cleanrooms. Give an account of THREE of these. (21 Marks)

Q2. Answer THREE of the following short questions. Each answer carries 11 marks.

- (i) The principle and the method of the membrane filtration test for sterility testing.
- (ii) Techniques used to prevent false positive results in microbiology
- (iii) Distinguish between selective and non-selective agars, giving a well-explained example of each, indicating also a situation where each of these may be useful.
- (iv) The validation of methods for use in microbiology is important. Give an example of how you might validate a new method for use.

Section B

- Q3. (i) Define what is meant by β haemolysis in microbiology (5 Marks)
- Outline a method used for the
- (ii) isolation (8 Marks)
- and*
- (iii) Identification of β -haemolytic *Streptococcus* spp. (10 Marks)
- (iv) Give an account of two β -haemolytic streptococci that may be important for human health. (10 Marks)
- Q4. (i) The Limulus Amebocyte Lysate assay (LAL test) is an important test to determine contamination of certain samples. Give an account of the principle upon which this assay is based. (10 Marks)
- (ii) Describe the method by which the turbidometric LAL assay is conducted. (15 Marks)
- (iii) There are careful controls governing the performance of the LAL test in industry. Discuss these. (8 Marks)