

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2012

Module Title: Introductory Microbiology

Module Code: BIOM6008

School: Science

Programme Title(s): Bachelor of Science (Honours) in Herbal Science – Year 2
Bachelor of Science in Horticulture – Year 2

Programmes Code(s): SHERB_8_Y2 / BHORT_7_Y2

External Examiner(s): Dr Julia Green,

Internal Examiner(s): Dr. Olivia Cashman, Dr. Deirdre Gilroy

Instructions: Answer two questions from Section A and two questions from Section B

Duration: 2 Hours

Sitting: Autumn 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. If in doubt please contact an Invigilator.

Section A

- Q1. (a) Explain the lytic cycle of viruses. (10 Marks)
- (b) Describe what is meant by lysogeny. (5 Marks)
- (c) Explain how yeasts and moulds are classified. (10 Marks)
- Q2. (i) Compare and contrast complex, selective and defined media. (20 Marks)
- (ii) Briefly describe the different oxygen requirements for bacteria. (5 Marks)
- Q3. (a) Describe the various forms of heat treatment used in the control of microbial populations. (13 Marks)
- (b) Write explanatory notes on the use of the following for reducing or removing microorganisms from the environment:
- (i) Filtration (3 marks)
 - (ii) UV radiation (3 marks)
 - (iii) Alcohol (3 marks)
 - (iv) Chlorine (3 marks)

Section B

- Q4. (a) Write short notes on three of the following structures and describe their function in prokaryotic cells:-
- (i) Granules
 - (ii) Plasmids
 - (iii) Flagella
 - (iv) Capsule (15 marks)
- (b) In a few sentences, indicate how the bacterial endospore differs from the vegetative cell in structure, chemical composition and ability to resist extreme environmental conditions. (10 marks)
- Q5. Discuss the Structure, Classification and Reproduction of Algae. (25 marks)
- Q6. (a) How did Pasteur defeat the theory of spontaneous generation? (4 Marks)
- (b) Describe the structure of Gram negative bacterial cell walls. (12 Marks)
- (c) Describe how prokaryotic DNA is organised. (4 Marks)
- (d) What molecular adaptations to the cytoplasmic membrane are seen in psychrophiles and why are they necessary? (5 Marks)