

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Autumn Examinations 2011

Module Title: Introductory Microbiology

Module Code: BIOM6008

School: Science & Informatics

Programme Title: Bachelor of Science (Hons) in Herbal Science Year 2
Bachelor of Science in Horticulture Year 2

Programme Code: SHERB_8_Y2
BHORT_7_Y2

External Examiner(s): Prof. E. Williamson
Dr J. Green

Internal Examiner(s): Dr Deirdre Gilroy

Instructions: Answer THREE questions. All questions carry 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.

- Q1.** (a) How did Pasteur defeat the theory of spontaneous generation? (5 marks)
- (b) Describe the structure, composition and function of Gram positive bacterial cell walls. (10 marks)
- (c) In prokaryotes, which transport system is best suited to the transport of nutrients present in the environment in extremely low amounts, and why? (5 marks)
- Q2.** (a) With the aid of graphs explain the differences that exist between bacteriostatic, bacteriocidal and bacteriolytic antimicrobial agents. (12 marks)
- (b) Discuss the use of heat as a method to control microbial populations. (8 marks)
- Q3.** (a) With the aid of a test tube diagram show how oxygen levels can influence the growth rate of a culture and identify the different bacterial classes based on their sensitivity to oxygen. (6 marks)
- (b) Using examples, explain what you understand by the terms selective and differential media for bacterial growth. (5 marks)
- (c) Explain the difference between spread plate and pour plate techniques? (5 marks)
- (d) Describe the principle of the Gram stain. (4 marks)
- Q4.** (a) The virus life cycle can be divided into 7 stages. Briefly describe these. (14 marks)
- (b) Write short notes on the influenza virus. (6 marks)
- Q5.** (a) Describe the fungus responsible for Dry Rot. (8 marks)
- (b) Draw and label the structure of an *Aspergillus* species. (4 marks)
- (c) Write short notes on *Cryptosporidium parvum*. (8 marks)