

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Semester 1 Examinations 2011/12

Module Title: Fundamentals of Microbiology 1
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Module Code: BIOM6007

School: Science

Programme Title:

Bachelor of Science in Applied Biosciences & Biotechnology – Year 2

Bachelor of Science (Honours) in Pharmaceutical Biotechnology – Year 2

Bachelor of Science (Honours) in Nutrition & Health Science – Year 2

Programme Code: SBIOS_7_Y2
 SPHBI_8_Y2
 SNHSC_8_Y2

External Examiner(s): Dr J. Bird, Dr A. Gallagher, Dr A. Nelson

Internal Examiner(s): Dr A. Coffey

Instructions: Answer Three questions. All questions carry equal marks.

Duration: 2 Hours

Sitting: Winter 2011

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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1.

- (a) Discuss the methods used to classify bacteria with particular reference to: cell morphology, colony morphology and biochemical tests. (60 marks)
- (b) Explain the naming system for bacteria. (10 marks)
- (c) Describe examples of three important bacterial/archeal groups in the environment. (30 marks)

Total 100 marks

2.

Write an essay on the nutritional requirements of bacteria with reference to:

- (a) why nutrients are needed, (15 marks)
- (b) the principle macronutrients (discuss four), (40 marks)
- (c) micronutrients (name four and give general function), (10 marks)
- (d) growth factors (comment on three), (15 marks)
- (e) types of microbial nutrition (heterotroph, autotroph, etc) (20 marks)

Total 100 marks

3.

Discuss bacterial cultures from the point of view of:

- (a) Long-term preservation of cultures. (10 marks)
- (b) Pure cultures. (10 marks)
- (c) Streak plate for isolation of pure cultures. (10 marks)
- (d) Spread plate and its application. (30 marks)
- (e) Pour plate and applications. (30 marks)
- (f) Aseptic technique. (10 marks)

Total 100 marks

4.

Write an account of physical methods used to control and/or inhibit the growth of microorganisms with reference to:

- (a) Moist heat (boiling, autoclaving, pasteurization) (30 marks)
- (b) Dry heat. (10 marks)
- (c) Drying and the concept of a_w . (20 marks)
- (d) Osmotic pressure. (10 marks)
- (e) Filtration. (10 marks)
- (f) Irradiation. (20 marks)

Total 100 marks