

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Winter Examinations 2012

Module Title: Food and Healthcare Microbiology

Module Code: BIOM 7003

School: Biological Science

Programme Title: Bachelor of Science in Food Science and Technology – Year 3
Bachelor of Science (Honours) in Nutrition & Health Science – Year 3
Bachelor of Science (Honours) in Herbal Science – Year 3

Programme Code: SFSTE_7_Y3
SNHSC_8_Y3
SHERB_8_Y3

External Examiner(s): Dr Gillian Gardiner
Internal Examiner(s): Dr Helena Stack

Instructions: Answer question 1 and two other questions.
All questions carry equal marks.

Duration: 2 Hours

Sitting: Winter, 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 paper.
If in doubt please contact an Invigilator.

Answer question 1 and two other questions.

Q1. (a) Write a short note on the following:

- (i) The importance of dilutions in the enumeration of bacterial cultures (3 marks)
- (ii) Spread plate (3 marks)
- (iii) Specific growth rate (3 marks)

(b) Bacteriocins are antimicrobial peptides. Briefly discuss. (3 marks)

(c) Write a short note on microbial growth in food under the following headings:

- (i) Mixed and pure population (4 marks)
- (ii) Diauxic growth (4 marks)

Q2. *Campylobacter* is among the top five pathogens contributing to domestically acquired foodborne illness resulting in death (Centre for Disease Control). Discuss under the following headings: (include headings in your answer)

- (i) Metabolism (2 marks)
- (ii) Growth and Survival (2 marks)
- (iii) Pathophysiology (10 marks)
- (iv) Infectious dose (2 marks)
- (v) One disease complication resulting from Campylobacteriosis (4 marks)

Q3. Several methods, individually or in combination are used to control microorganisms in food. Discuss each of the following in detail (include headings in your answers).

- (i) Control by heat (12 marks)
- (ii) Control by low pH (8 marks)

Q4. Write short notes on the following:

- (i) Pathogenicity island (2 marks)
- (ii) Antigen (2 marks)
- (iii) Hemolytic uremic syndrome (HUS) (4 marks)
- (iv) Successful foodborne illness (4 marks)
- (v) Food intoxication (4 marks)
- (vi) *T. gondii* asexual cycle (4 marks)