

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Autumn Examinations 2011

Module Title: Nutritional Analysis

Module Code: BIOL7018

School: Biological Sciences

Programme Title: Bachelor of Science (Honours) in Herbal Science – Year 2
Bachelor of Science (Honours) in Nutrition and Health Science – Year 2

Programme Code: **SHERB_8_Y2**
SNHSC_8_Y2

External Examiner(s): Prof. E. Williamson, Dr Julia Green, Dr Alison Gallagher
Internal Examiner(s): Germain Levieille

Instructions: **Answer any 3 of the 5 questions asked. Each question carries an equal mark weighting.**
Please state clearly the questions addressed in your paper.

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) What is the “protein efficiency ratio” (PER) of a food. How can this ratio be determined experimentally for a food product? (12 marks)
- b) What is meant by “limiting amino acid” in food ingredients and its consequences in nutrition. (10 marks)
- c) Discuss the concept of “complete protein”; explain this concept and its implications in human nutrition. (12 marks)

Q2:

- a) Give short descriptions and definitions for: (16 marks)
 - 1. EAR
 - 2. RDA
 - 3. Tolerable Upper-Intake Level (UL)
 - 4. Adequate Intake (AI)
- b) Discuss the concept of optimal nutrition and how it relates to dietary reference standards. (10 marks)
- c) Supported by examples, elaborate on the micronutrients recommended intakes and the Health issues resulting from deficiencies and toxicity levels. (8 marks)

Q3:

- a) Give a definition for:
 - i) Glycaemic Index (5 marks)
 - ii) Glycaemic Load (5 marks)
- b) What is the relation between GI and GL? (7 marks)
- c) Discuss the meaning of Glycaemic Index, Glycaemic Load and Insulin Index in human nutrition and the risks associated with sustained high GI diet. (17 marks)

Q4:

- a) Describe the Kjeldahl method and discuss its advantages and limitations. (14 marks)
- b) The total protein concentration of a food ingredient can be measured through a number of colorimetric methods. Describe one of these methods used to determine the total protein content of a food product. (10 marks)
- c) Proteins can be “salted out” of a mixed solution. Discuss this method of separation of the protein. (10 marks)

Q5:

- a) What is malnutrition? (7 marks)
- b) Discuss the issue of risks of the different forms of under-nutrition. (12 marks)
- c) Discuss the issue of protein-energy malnutrition (PEM) and explain particularly the main diseases resulting from these conditions with PEM. (15 marks)