

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Semester 2 Examinations 2013/14

Module Title: Nutritional Analysis

Module Code: BIOL7018

School: Science & Informatics

Programme Title(s): Bachelor of Science in Applied Biosciences
Bachelor of Science (Hons) in Herbal Science
Bachelor of Science in Nutrition & Health Science

Programmes Code(s): SBIOS_7_Y2/ SHERB_8_Y2/ SNHSC_8_Y2

External Examiner(s): Dr. Tom O' Connor
Prof. Olivia Corcoran
Prof. Torres Sweeney

Internal Examiner(s): Anneliese Dressel

Student Name: **ID NO:**.....

Instructions:

1. Write your student number in the box provided
2. Section A: Short Questions. Answer all questions (40 marks). Write your answers in the book provided.
3. Section B: Long Questions – Answer a total of 3 questions from a selection of 5 questions (60 marks – 20 marks X 3) Please use a separate answer book
4. No use of mobile phones, textbooks or notes.
5. Any rough notes written must be handed up with your answer books.

Duration: 2 hours

Sitting: Summer 2014

Requirements for this examination: Calculator

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: Short Questions

Answer all 15 questions (40 marks in total)

1. a) Calculate the BMI for a man that weighs 122kg and is 1.91m? (2 marks)
b) What category does this man fall into? (1 mark)

(a)

(b)

2. How many calories (kCal) per gram of: (3 marks)

- a) Carbohydrate
b) Fat
c) Protein

(a)

(b)

(c)

3. What is the RDA (Recommended Daily Allowance) for: (3 marks)

- a) Carbohydrate
b) Protein
c) Fat

(a)

(b)

(c)

4. Name 3 functions of proteins in the human body. (3 marks)

(a)

(b)

(c)

5. What is the definition of an essential amino acid? (2 marks)

6. Please give a short definition of the following terms: (3 marks)

- a. Osteopenia and Osteoporosis
- b. Anaemia
- c. Tolerable Upper-Intake Level (UL) and Adequate Intake (AI)

(a)

(b)

(c)

7. Name 3 functions of fats in the human body. (3 marks).

(a)

(b)

(c)

8. List 3 sources of fats (1 mark)

(a)

(b)

(c)

9. Name an essential fat (1 mark) and list 3 sources of this essential fat (2 marks)

(a)

(b)

(c)

(d)

10. List 3 functions of water in the human body. (3 marks)

(a)

(b)

(c)

11. List 3 causes of physiological fluid imbalances (3 marks)

(a)

(b)

(c)

12. Name the hormones that are important in the regulation of sodium ion concentrations in the body? (3 marks)

(a)

(b)

(c)

13. List the fat soluble vitamins (2 marks)

14. What is the Recommended Dietary Allowances (RDA) (2 marks)

15. List the three buffer systems that control acid-base balance in the body? (3 marks)

(a)

(b)

(c)

Section B: Long Questions

Answer a total of 3 questions. Each question is worth 20 marks each for a total of 60 marks.

1. Discuss the role of sodium in the body and describe the absorption and excretion of sodium. Elaborate on the issues resulting from sodium excess. Name the food sources of sodium and list some alternatives to sodium that can be used to flavour food. (20 marks)
2. Explain the importance of calcium in nutrition, its role and function in the human body and the risks associated with deficiency of this mineral. Discuss the consequences of inadequate calcium intake in children and in adults. (20 marks)
3. Explain the importance of Vitamin D in nutrition, its role and function in the human body, the nutritional requirements and the risks associated with deficiency of this vitamin. (20 marks)
4. Discuss the functions of Vitamin C in the body. What are the physiological effects of deficiency and toxicity? Name the food sources of Vitamin C. (20 marks)
5. Explain the physiological response to a change in acid/base balance, listing the three homeostatic mechanisms and buffer systems that are involved in this response. Discuss the consequences of extreme acid/base imbalances. (20 marks)