

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2015

Module Title: Science of Food and Health (CA)

Module Code: FOOD6001

School: Science and Informatics

Programme Title(s): BSc (Hons) Nutrition & Health Science
BSc (Hons) Herbal Science
BSc (Hons) Pharmaceutical Biotechnology
BSc Applied Biosciences

Programme Code(s): SNHSC_8_Y1
SHERB_8_Y1
SPHB1_8_Y1
SBIOS_7_Y1

External Examiners: Dr Tom O'Connor

Internal Examiners: Dr Máire Begley, Ms Anna Murphy, Dr Aoife McCarthy

Instructions: Answer **Q1** and **three** other questions.
All questions carry equal marks (25 marks).

Duration: 2 hours

Sitting: Autumn 2015

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 paper.
If in doubt please contact an Invigilator.

Q1. COMPULSORY QUESTION. Answer all parts.

- (a) Iodine was added to two test tubes. Test tube one contained whole cow's milk and test tube two contained soya milk. Briefly describe what you would expect to see in each test tube and what this result means. **(4 marks)**
- (b) State two purposes of nitrites and nitrates as food additives. **(2 marks)**
- (c) A 34g Mars Bar contains 5.7g fat, 23.4g carbohydrate, 1.5g protein and 0.13g salt. Calculate the total calorie value in 1 Mars Bar (34g). **(6 marks)**
- (d) What type of iron is present in
- i. Red meat
 - ii. Dark green vegetables **(2 marks)**
- (e) The ascorbic acid content of orange juice 100mg per 200ml serving. What % of the recommended daily allowance (RDA) for vitamin C is provided by an average serving (200ml) of orange juice. Note the RDA for vitamin C is 80mg/day. **(3 marks)**
- (f) For each of the following macromolecules, state what type of enzyme is involved in breaking the macromolecule into its building blocks.
- i. Starch
 - ii. Triglycerides
 - iii. Protein **(3 marks)**
- (g) A probiotic yogurt drink was diluted and 100µl of the 10^{-2} dilution was plated onto MRS agar and incubated for 48hrs at 37°C. 23 colonies were counted on the agar plate after incubation. Calculate the colony forming units (CFU)/ml in the original drink. **(5 marks)**

Q2.

- (a) Distinguish between simple and complex carbohydrates. Give examples in your answer. **(4 marks)**
- (b) Give three reasons why water should be consumed as part of a healthy diet. **(6 marks)**
- (c) Outline what you understand by the term 'atherosclerosis'. **(5 marks)**
- (d) Write a note on probiotics and prebiotics. **(10 marks)**

Q3.

(a) Distinguish between

i. Triglycerides and phospholipids

ii. Saturated and unsaturated fatty acids **(8 marks)**

(b) Outline how waist circumference and body mass index (BMI) are used to indicate overweight/obesity. **(5 marks)**

(c) Briefly describe what coeliac disease is and the symptoms of this disease. **(8 marks)**

(d) How do phytosterols function in lowering cholesterol levels in the body? **(4 marks)**

Q4.

(a) Distinguish between essential and non-essential amino acids. **(4 marks)**

(b) Explain the three different types of Diabetes Mellitus. **(9 marks)**

(c) Explain the concept of the 'low FODMAP diet' for managing irritable bowel syndrome (IBS). **(6 marks)**

(d) Outline the proposed benefits of caffeine consumption for athletes. **(6 marks)**

Q5.

(a) Briefly describe, with examples, how certain dietary compounds can interfere with mineral absorption. **(6 marks)**

(b) Explain what is meant by a 'functional food' and give two examples of natural functional foods and two examples of manufactured functional foods. **(6 marks)**

(c) List four main functions of vitamins in the body. **(4 marks)**

(d) Write a note on diet and cancer. **(9 marks)**