

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2016

Module Title: Food and Healthcare Toxicology

Module Code: CHEM7003

School: Science and Informatics

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

**Programmes Code(s): SHERB_8_Y3
SNHSC_8_Y3
SFSTE_7_Y3**

External Examiner(s): Dr Tom O'Connor

Internal Examiner(s): Dr Aoife McCarthy

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

Duration: 2 hours

Sitting: Autumn 2016

Requirements for this examination: Scientific 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.

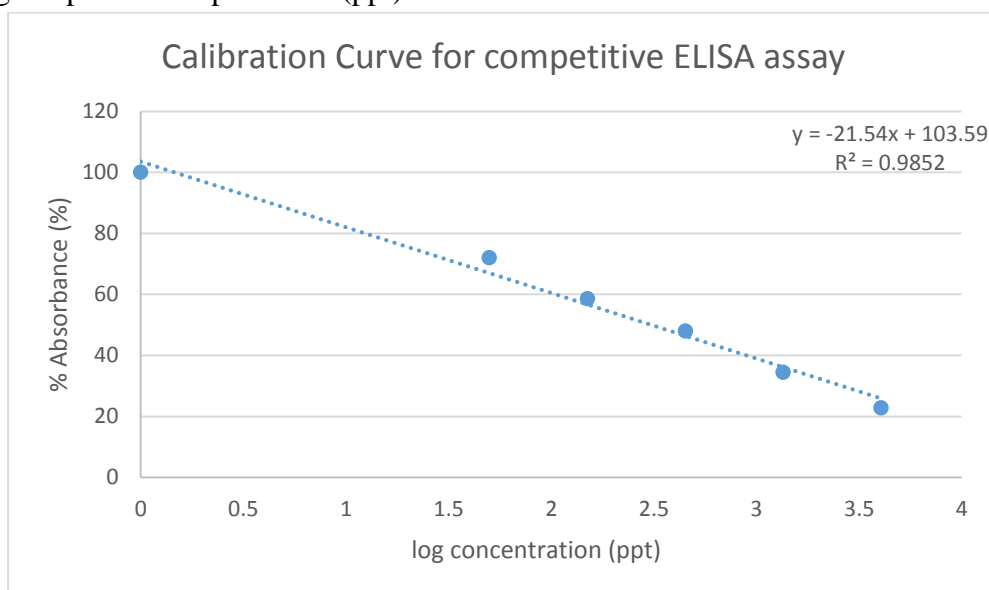
Answer question one **and** two other questions.

Q1. Compulsory

(a) Write notes on the following:

- (i) Acetaminophen toxicity and treatment for acetaminophen overdose (5 marks)
- (ii) Use of *Daphnia pulex* to determine 24h-EC50_i values of toxicants (5 marks)
- (iii) Principle of the Ames test using amino-acid dependent E.Coli strains (5 marks)

(b) Below is a graph that was generated using results from a competitive ELISA for the determination of total Aflatoxin in peanuts. During the experiment, the peanut sample was diluted by a factor of 35. The % absorbance for the peanut sample was 80%. Calculate the concentration of total Aflatoxin in the original peanut sample tested (ppt). (5 marks)



Q2. Write short notes on **four** of the following:

- (i) Cyanogens (5 marks)
- (ii) Organochlorines (5 marks)
- (iii) Aflatoxin (5 marks)
- (iv) *Clostridium botulinum* (5 marks)
- (v) Vitamin D toxicity (5 marks)
- (vi) Lead toxicity (5 marks)

Q3. Write an essay on toxic effects, using the headings given below. Illustrate your answer using examples.

- (i) Immunotoxicity (10 marks)
- (ii) Carcinogenesis (10 marks)

Q4. Write an essay on food additives and toxicity. In your answer discuss artificial sweeteners, colorants and fat replacers. (20 marks)