

Cork Institute of Technology
Bachelor of Science (Honours) in Applied Biosciences – Award

(NFQ – Level 8)

Spring 2007

Environmental Science

(Time: 3 Hours)

Instructions:

Answer **FOUR** questions.

Answer Question 1 (compulsory) and any

THREE other Questions.

Examiners: Mr. E. Callery

Prof. R.J. Fitzgerald

Q1. Compulsory

Answer any **four** of the following:

- (i) Write an informative account of TWO of the following hazard controls:
 - Training & Education
 - Housekeeping & Maintenance
 - Personal Hygiene
- (ii) Define the term ionizing radiation and discuss its main sources in the workplace and the main hazards associated with it.
- (iii) Describe how the safety statement forms the basis of safety management systems in companies.
- (iv) Outline the structure of the human ear and explain the different mechanisms of hearing impairment.
- (v) Discuss the main objectives of the Montreal and Kyoto Protocols and comment on their progress.
- (vi) Renewable sources of energy are the foundation of a sustainable energy system. Discuss this comment outlining the main renewable energy technologies available today.
- (vii) Comment on the environmental aspects of Ireland's national development plans over the past 15 years and how there has been a shift towards sustainability.
- (viii) Outline the challenges of creating sustainable cities and towns.

(4 x 10 marks)

Q2. (a) Discuss the term “Hierarchy of Control” and how it should be applied to control of hazards in the workplace. (12 marks)

(b) Describe two types of engineering controls and their effectiveness at minimizing risk from a hazard. (8 marks)

Q3. (a) Explain the different options available for evaluating airborne hazards by monitoring the atmosphere. (12 marks)

(b) Discuss the process of a Risk Assessment and why it is an important feature of safety management for all workplaces. (8 marks)

Q4. (a) Ireland has made large inroads over the last 20 years from a complete dependence on landfills as a means of waste disposal towards a more sustainable waste management system.

Discuss this statement illustrating the role of EU legislation. (16 marks)

(b) What are the current waste management challenges in Ireland? (4 marks)

Q5. (a) Describe in detail the anatomy of the respiratory system and outline its main defences against inhalation hazards. (10 marks)

(b) Write an informative account of airborne hazards in the workplace under the following headings:
(i) Particulates.
(ii) Solvents.
(iii) Gases. (10 marks)

Q6. (a) Discuss the pressures of a growing population on sustainable development and the importance of population control. (10 marks)

(b) Outline the main objectives of the Agenda 21 towards a sustainable future. (10 marks)

Q7. (a) Explain how Integrated Pollution Prevention & Control licensing regulates environmental management in industries. (15 marks)

(b) Why is waste auditing an essential part of environmental management within a company? (5 marks)