

Cork Institute of Technology

Bachelor of Science in Cell and Molecular Biology – Award

(National Diploma in Science in Cell and Molecular Biology – Award)

Bachelor of Science in Food Science and Technology – Award

(National Diploma in Science in Food Science and Technology – Award)

(NFQ – Level 6)

Autumn 2005

General Microbiology

(Time: 2 Hours)

Instructions

Answer **FOUR** questions.

TWO questions from **each** Section.

Use separate answer books for each section.

All questions carry equal marks.

Examiners: Dr. D. Gilroy

Ms. M. Lane

Prof. R. Fitzgerald

Section A

- Q1. Carbohydrates are important components of microbial cells. Write an account of how the following pathways can provide microbial cells with the required carbohydrate.
- (a) Gluconeogenesis
 - (b) Pentose phosphate pathway
 - (c) Hexose interconversions. (25 marks)
- Q2. Using two examples, explain how operons regulate protein synthesis in response to environmental nutrients. (25 marks)
- Q3. Write an account of the microbial industrial production of Penicillin and Citric Acid. (25 marks)

Section B

- Q4. (a) Draw and label the structure of IgG and IgM. (8 marks)
(b) Describe a 3 class-sampling plan. (7 marks)
(c) Briefly describe the role of complement in the immune response. (10 marks)

Q5. Write short notes on three techniques you have studied for microbiological analysis. (25 marks)

Q6. Discuss sterility testing in the pharmaceutical industry and outline the use of biological indicators to assess the effectiveness of various sterilisation methods.

Or

Write an essay on clean room technology in the biopharmaceutical industry. (25 marks)