

Cork Institute of Technology  
Bachelor of Science (Honours) in Applied Biosciences - Award  
December 2004

**Advanced Microbial Topics**

(Time: 3 Hours)

Instructions  
Answer FOUR questions.  
ONE question from each Section (A, B and C)  
and one other of your choice.  
Use separate answer books for each Section.  
All questions carry equal marks.

Examiners: Dr. A. Coffey  
Dr. D. Gilroy  
Dr. H. O'Shea  
Mr. M. Hickey

**Section A**

- Q1. Describe three methods whereby fusion-protein technology can facilitate purification of a cloned gene product. (25 marks)
- Q2. Discuss the bacteriophage problem in food fermentations and describe how biotechnology can be applied to reduce the problem. (25 marks)

**Section B - Analytical Microbiology**

- Q3. Discuss DNA-based methods used for the identification and epidemiologic typing of microorganisms. (25 marks)
- Q4. Describe the principle and microbiological applications of the following techniques:  
Fourier-Transform Infra Red Spectroscopy  
Indirect Conductimetry  
Bacterial Bioluminescence (25 marks)

**Section C**

- Q5. Discuss the Family Herpesviridae, outlining, in your answer, the ability of these viruses to cause latent infections. (25 marks)
- Q.6. Discuss virus vaccines. (25 marks)