

Cork Institute of Technology

Bachelor of Science (Honours) in BioSciences - Award

(NFQ Level 8)

December 2006

Microbiology

(Time: 3 hours)

Answer FOUR Questions.
One from each section (A, B and C)
and one other of your choice.
Please use separate answer books for each section.

Examiners :
Dr. A. Coffey
Dr. D. Gilroy
Dr. H. O' Shea
Dr. T. Beresford

Section A - Microbial Biotechnology

- Q1. Write an essay on Probiotics. (25 marks)
- Q2. A commercially-important human protein is encoded by a gene which (a) is interrupted by introns and (b) is not bordered by restriction sites that are compatible with sites in the cloning vector. How would a functional gene for that protein be cloned in *E. coli*? (25 marks)

Section B – Pharmaceutical and Environmental Microbiology

- Q3. Discuss bacterial quorum sensing. (25 marks)
- Q4. Describe the mode of action of four classes of antibiotics. (25 marks)

Section C – Microbial Pathogenicity and Virulence

- Q5. *Clostridium difficile* infection can lead to pseudomembranous colitis. Name and describe the role of the virulence factors known to be associated specifically with this disease. (25 marks)
- Q6. Discuss viruses that cause Gastroenteritis, referring in your answer, to at least two separate virus families. (25 marks)