Cork Institute of Technology

Bachelor of Science (Honours) in Applied BioSciences - Award

(NFQ Level 8)

Autumn 2007

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. Describe three methods whereby fusion-protein technology can facilitate purification of a cloned gene product. (25 marks)

Q2. Give an account of commercial yeast culture production and describe the application of yeast in brewing. (25 marks)

Section B – Pharmaceutical and Environmental Microbiology

Q3. (i) Anaerobic degradation of organic matter occurs in various phases; describe these and list the types of organisms involved in this process. (10 marks)

(ii) Describe the various classes of quorum signal molecules that have been identified. (15 marks)

Q4. (i) How doe the β-lactam group of antibiotics function? (10 marks)

(ii) Why does antibiotic resistance occur? (15 marks)

Section C – Microbial Pathogenicity and Virulence

Q5. Staphylococcus aureus is a very versatile pathogen, with many different virulence factors. Discuss this statement.

OR

(25 marks)

Clostridia cause a wide variety of diseases – describe any two of these.

(25 marks)

Q6. Discuss the family Herpesviridae, outlining, in your answer, ability of these viruses to cause latent infections. (25 marks)