

# **Cork Institute of Technology**

## **Masters in Biomedical Sciences - Award**

**(NFQ – Level 9)**

**Summer 2007**

### **BM5009 – Advanced Microbial Pathogenesis**

**(Time: 3 Hours)**

Dr G. Beall  
Prof. M. Prentice  
Prof. J.K. Collins  
Dr T. Barbosa  
Dr. A. Coffey  
Dr. B. Lucey  
Dr. J. O'Mahony  
Dr. H. O'Shea

**Answer 4 Questions**

**Use a Separate Answer Book for Each Question**

- Q1. Discuss possible methods that you could use:
- to show that a microorganism is pathogenic, and
  - to define specific mechanisms which the organism might use to act as a pathogen.
- Q2. *Mycobacterium tuberculosis* is one of the oldest recorded infectious diseases. Describe in detail its social impact throughout history, and classify the specialised virulence mechanisms it possesses.

- Q3. Compare and contrast the pathogenesis of infection by the spirochetes *Treponema pallidum pallidum* and *Borrelia burgdorferi* and comment on the limitations associated with studies on these bacteria.
- Q4. The abnormal ion transport properties of CF airway epithelia form the basis for polymicrobial lung infection. Discuss.
- Q5. The study of oncogenic viruses has contributed much to our understanding of Cancer
- or
- Is HIV the ultimate pathogen? Discuss.
- Q6. Discuss the molecular pathogenesis of *E. coli* infections.
- Q7. “Designing a vaccine to Rotavirus presents several problems, due to the nature of the virus genome.” Comment on this statement.