

**NATIONAL UNIVERSITY OF IRELAND, GALWAY
OLLSCOIL NA hÉIREANN, GAILLIMH**

SUMMER EXAMINATIONS 2001

**HIGHER DIPLOMA IN APPLIED SCIENCE
(MICROBIOLOGY)**

PAPER 1

EXTERN EXAMINER: PROFESSOR C M BROWN
INTERNAL EXAMINER : Internal Examiners

TIME ALLOWED : 3 HOURS

**(INDICATE CLEARLY THE QUESTIONS ANSWERED ON THE
FIRST PAGE OF YOUR ANSWER BOOK)**

ANSWER FIVE QUESTIONS

- Q.1. ISO 9000 series provides a central role in a Quality Management System. Discuss
- Q.2. Discuss the properties of antigens, in particular describe their immunogenicity, epitope characteristics, and the importance of methods of antigen administration for the incubation of antibodies.
- Q.3. Write an essay entitled 'The polymerase chain reaction'. Include two specific examples of new PCR-based diagnostic tests.
- Q.4. Describe the methodology involved in the construction of a cDNA library.
- Q.5. Write an essay on microbiological media. Outline in your answer the major constituents of complex media and their properties, faults and causes of incorrect medium preparation and conditions of medium storage.
- Q.6. Discuss GMP in terms of a Quality Management System for the Pharmaceutical/Healthcare Manufacturing Industries. What requirements does it address in addition to ISO 9000.
- Q.7. The four major preservative techniques that are commonly used for the storage of microorganisms are: active transfer, drying, freezing and lyophilisation. Compare and contrast two of these methods giving advantages and disadvantages of each.
- Q.8. Write an essay on the problem of pyrogens in parenterals. How would you test for them and how might their presence be avoided?
- Q.9. Discuss sterilisation processes used for the production of parenterals and other sterile products, and their validation.