

OLLSCOIL NA hEIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

SUMMER EXAMINATIONS 2001

M. Sc. Biotechnology

First Year

Third Paper

EXTERN EXAMINER Professor C M Brown
INTERN EXAMINER Internal Examiners

TIME ALLOWED: **3 hours**

ANSWER **FOUR** QUESTIONS IN TOTAL, WHICH MUST INCLUDE **TWO**
QUESTIONS FROM **BOTH** SECTION A **AND** SECTION B.

PLEASE USE **SEPARATE** ANSWER BOOKS FOR EACH SECTION.

SECTION A

1. Discuss the advantages and disadvantages of polyclonal, monoclonal and recombinant antibodies for diagnostic applications.
2. Design a micro-titre plate-based immunoassay for the pituitary protein Follicle Stimulating Hormone (FSH), stating how the assay could be properly validated for use in a hospital clinical laboratory.

3. Outline two major applications of antibodies. Write a short essay on one of these applications, stressing the advantages of antibodies to this application over other binding proteins.

SECTION B

1. Explain the meanings of the following terms as applied to drugs: specificity, affinity, efficacy, agonist, partial agonist, non-competitive antagonist. Describe how the affinity of a drug for a receptor may be experimentally measured and expressed, and explain the importance of affinity in drug action.
2. Describe with examples the laboratory methods used to study the relationships between chemical structure and pharmacological activity (SAR).
3. Write an essay on biopharmaceuticals.