

NATIONAL UNIVERSITY OF IRELAND, GALWAY
OLLSCOIL NA hÉIREANN, GAILLIMH

SUMMER EXAMINATIONS 2000
SEMESTER 11

THIRD SCIENCE - Microbiology

EXTERN EXAMINER: Professor C M Brown
INTERN EXAMINER: Internal Examiners

TIME ALLOWED: **3 HOURS**

ANSWER **FIVE** QUESTIONS

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

- Q 1. Discuss the roles played by phagocytosis and inflammation in non-specific immunity.
- Q 2. Describe the *in vitro* antibody tests based on agglutination and immunomicroscopy. Include suitable diagrams to illustrate your answer.
- Q 3. Discuss the role of oncogenes in the development of a cancer, with particular reference to the part played by viruses.
- Q 4. Discuss how Conjugation and Transduction may be used in Gene Mapping in *E. coli*.
- Q 5. "Genetic engineering integrates diverse natural systems to yield new possibilities". Discuss with reference to methods and products.
- Q 6. Select three enzymes that are used in genetic engineering experiments. Describe their functions and the applications they have in genetic engineering.
- Q 7. Write an essay on "The degradation of hydrocarbons by microorganisms".
- Q 8. Outline the mechanisms which allow (i) aerobic and (ii) anaerobes, such as the *Clostridia*, to derive energy and reducing power from amino acids as a sole carbon source.