

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

SEMESTER ONE EXAMINATION

1999/2000

SECOND SCIENCE

MICROBIOLOGY

EXTERN EXAMINER Professor C M Browne

INTERN EXAMINER Internal Examiners

TIME ALLOWED: 3 hours

ANSWER FIVE QUESTIONS

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

1. Describe how a messenger RNA molecule is transcribed from a gene on the bacterial chromosome. Include details on promoter structure, the RNA transcription process, and the termination of transcription.
2. Write an essay entitled " Gene transfer in bacteria".
3. Describe the structure and function of the Gram-positive cell envelope.
4. Compare and contrast the prokaryotic and eukaryotic cell types.
5. Discuss the influences of pH on microbial growth.

6. Write an essay on culture of micro-organisms in the laboratory. Include in your discussion an appraisal of batch and continuous culture, complex and synthetic media as well as selective and differential media.
7. Describe in detail, the operation of the electron transport chain and associated oxidative phosphorylation in eukaryotes. Briefly comment on the differences between eukaryotic and prokaryotic processes.
8. Compare and contrast fermentative and aerobic metabolic pathways of bacteria.