Ollscoil na hÉireann, Gaillimh GX 1015 A
National University of Ireland, Galway

Semester II Examinations, 2004/2005

Exam Code(s)	2BS1
Exam(s)	2nd Year Science Examination
Module Code(s)	MI212
Module(s)	Microbiology – Microbes And The Environment
Paper No.	1
Repeat Paper	Special Paper
External Examiner(s)	Professor C.M. Brown
Internal Examiner(s)	Professor J. A. Houghton
	Dr. C. O'Byrne
Instructions:	**Answer Question 1 and 4 other questions**
	Please indicate clearly the numbers of the questions answered on the first page of your Answer Book
Duration	3 hrs
No. of Pages	
Department(s)	Microbiology
Course Co-ordinator(s)	Dr. Conor O'Byrne

Requirements:

Handout	
MCQ	
Statistical Tables	
Graph Paper	
Log Graph Paper	
Other Material	

Q1. What is phylogenetic classification? Describe why and how rRNA gene sequences are used for phylogenetic classification.

Q2. Write notes on **three** of the following:

(i) Nitrogen fixation by Cyanobacteria;
(ii) Pseudomonas and Pseudomonads;
(iii) IMViC reactions for identification of Enteric bacteria;
(iv) Low GC-ratio spore forming bacteria;
(v) Acetic acid bacteria.

Q3. Discuss the use of nucleic-acid-based methods by the microbial ecologist. What are their advantages and disadvantages?

Q4. Describe, with the aid of diagrams, the life cycle of a "typical" animal virus.

Q5. Discuss the key microbiological steps of the Nitrogen cycle. In your answer, briefly describe the main features of the Nitrogenase enzyme complex.

Q6. Describe the microbiology of anaerobic digestion and how the process is employed for industrial wastewater treatment.

Q7. Write a short essay on "The Commensal Microflora of Humans".

Q8. Discuss the role played by antibodies in the human immune system. In your answer outline how antibodies are produced in response to antigenic stimuli.