

Semester II Examinations, 2004/2005

Exam Code(s)	2BV121 & IE2
Exam(s)	2BV121 - Second University Examination in Engineering (Environmental)
	&
	IE2 - Second University Examination in Science (Health and Safety Systems)
Module Code(s)	MI450 and MI430
Module(s)	Sanitary Microbiology
Paper No.	1
Repeat Paper	Special Paper
External Examiner(s)	Professor C.M. Brown
Internal Examiner(s)	Professor J. A. Houghton
	Dr. V. O'Flaherty

Instructions:**Answer 5 Questions**

Indicate clearly 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. Vincent O'Flaherty

Requirements:

Handout	_____
MCQ	_____
Statistical Tables	_____
Graph Paper	_____
Log Graph Paper	_____
Other Material	_____

- Q.1** Write short descriptive notes on **THREE** of the following:
- (a) Biofilms
 - (b) Prokaryotic vs eukaryotic cells
 - (c) Eutrophication
 - (d) Bacterial shapes and sizes
 - (e) Aerobic bacteria
- Q.2** Describe the biological Nitrogen cycle, with particular emphasis on the role of the micro-organisms involved.
- Q.3** Write notes on **TWO** of the following:
- (a) The bacterial cell wall
 - (b) Growth of micro-organisms in the laboratory *versus* growth of micro-organisms in natural environments
 - (c) The significance of decomposition in biogeochemical cycling
- Q.4** Describe the growth cycle of a microbial population and discuss the physical factors that influence growth.
- Q.5** Write short descriptive notes on **THREE** of the following:
- (a) Advantages and disadvantages of aerobic and anaerobic microbial waste treatment
 - (b) Support media used in trickling filters
 - (c) Treatment options for sewage sludge
 - (d) Anaerobic digestion of raw sewage
 - (e) Psychrophilic anaerobic digestion
- Q.6** Write an essay entitled “Biological Conversion of Municipal Solid Waste”.
- Q.7** Write notes on **TWO** of the following:
- (a) The four categories of water-associated diseases
 - (b) The sequential stages of anaerobic digestion
 - (c) Disadvantages of bacterial indicator organisms for water quality monitoring
- Q.8** Write an essay entitled “Water-borne diseases of importance”.