



## Spring Examinations 2008/2009

<b>Exam Code(s)</b>	3BY1, 3BY2
<b>Exam(s)</b>	B.Sc. Degree (Biotechnology)
<b>Module Code(s)</b>	MI312
<b>Module(s)</b>	Microbiology
<b>Paper No.</b>	1
<b>Repeat Paper</b>	
<b>External Examiner(s)</b>	Professor G McMullan
<b>Internal Examiner(s)</b>	Professor V O'Flaherty
	Dr. T Barry
	Dr. M Tuohy

### Instructions:

### Answer 5 Questions

**Please indicate clearly the numbers of the questions answered on the first page of your Answer Book**

Duration	3 hrs
No. of Pages	1
Department(s)	Microbiology
Course Co-ordinator(s)	Dr. Maria Tuohy (Ext. 3439)

- Q1.** Compare and contrast the use of crude and defined media for industrial bioprocesses
- Q2.** When heat sterilising thermolabile liquids (media, for example) which do you think is preferable (and why):
- (a) A higher temperature and a shorter time.
  - (b) A lower temperature and a longer time.

What are the problems in applying the treatment you have chosen and how might they be overcome.?

- Q3.** Write an essay on water-borne diseases. In your answer, deal with the characteristics of the causative microorganisms (including viruses), the nature of the illness caused and measures used to treat the disease.

**Or**

List the characteristics of an ideal indicator microorganism for sewage pollution of water. Describe the methodologies used to detect, enumerate and confirm the presence of *Escherichia coli* in water bodies.

- Q4.** Write brief notes on **two** of the following:
- (a) Cervical cancer.
  - (b) Baltimore classification of viruses.
  - (c) How translocation events can lead to the activation of Proto Oncogenes.

- Q5.** Discuss the contribution of microorganisms to the production of cheese and comment on the problems caused by bacteriophage during the production process.

- Q6.** With reference to specific microorganisms outline the characteristics of a food intoxication that distinguish it from an infection.

- Q7.** Antibody-mediated and cell-mediated responses play a central role in the development of adaptive immunity. Discuss.

- Q8.** Write brief descriptive notes on **two** of the following antibody-based tests:
- (a) Immunoelectrophoresis.
  - (b) Radioimmunoassay.
  - (c) Complement fixation tests.

Include suitable illustrations when describing these assay systems.