

Semester II Examinations, 2004/2005

Exam Code(s)	3BS9
Exam(s)	3rd Year Science Examination
Module Code(s)	MI317
Module(s)	Molecular and Cellular Microbiology
Paper No.	1
Repeat Paper	Special Paper
External Examiner(s)	Professor C. M. Brown
Internal Examiner(s)	Professor J. A. Houghton
	Dr. T. Barry

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	
Department(s)	Microbiology
Course Co-ordinator(s)	Dr. Thomas Barry

Requirements:

Handout	
MCQ	
Statistical Tables	
Graph Paper	
Log Graph Paper	
Other Material	

- Q1.** Write an essay entitled "Hypersensitivity - adverse effects of the immune system".
- Q2.** Write brief descriptive notes on **two** of the following antibody-based tests:
- (a) Agglutination tests
 - (b) Complement fixation tests
 - (c) Immunomicroscopy
- Q3.** Write an essay on the suggested functions of some of the known proto-oncogenes within the normal animal cell. In your answer explain how their activation to cellular oncogenes (c-onc) might be expected to lead to uncontrolled cell growth and cancer.
- Q4.** Write an essay on the strategies developed to identify and characterise a specific mRNA transcript. In your answer elaborate on the methodologies which have been designed to ensure that the cDNA recombinant selected originates from the specific mRNA of interest.
- Q5.** Describe the polymerase chain reaction and its uses in modern genetics.
- Q6.** Compare and contrast the pathways of fatty acid anabolism and catabolism in yeast and bacteria.
- Q7.** Outline the mechanisms which allow (i) aerobic and (ii) anaerobes, such as *Clostridia spp.*, to derive energy and reducing power from amino acids as a sole carbon source.
- Q8.** Write an essay on "Conjugation in Bacteria".