

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2011

Module Title: Bioanalytical Science VI

Module Code: BIOT8004

School: Science

Programme Title(s): Bachelor of Science (Honours) Applied Biosciences (ACCS) – Award

Programmes Code(s): SBIOE_8_Y4

External Examiner(s): Dr Anne Nelson

Internal Examiner(s): Dr Olivia Cashman

Instructions: Answer one question from Section A, B and C.
Each question carries equal marks.

Duration: 2 Hours

Sitting: Autumn 2011

Requirements for this examination:

Note to Candidates: Please check the Programme Title and the Module Title to ensure that you have received the correct examination. If in doubt please contact an Invigilator.

Section A

- Q1. Discuss the role of biosensors in environmental monitoring and in the detection of emerging infectious diseases. (25 Marks)
- Q2. Discuss immunosensors, in particular
1. Nanomechanical sensors
 2. Microcantilever sensors
 3. Integrated optical sensors
- (25 Marks)

Section B

- Q3. With regard to immunoassays discuss radioactive and enzyme labels. (25 Marks)
- Q4. With regard to food borne / environmental pathogens discuss the use of immunomagnetic separation. In your answer include the principle and advantages to the technique. (25 Marks)

Section C

- Q5. Discuss the characteristics of an optimal screening assay. (25 Marks)
- Q6. a). Discuss the main requirements of primary bioassay screening. (10 Marks)
- b). Briefly discuss
- i). Anti-viral and anti-cancer assays (5 Marks)
 - ii). Anti-microbial assays (5 Marks)
 - iii). In-vitro anti-cancer screening (5 Marks)