

National University of Ireland, Galway
Ollscoil na hÉireann, Gaillimh

SUMMER EXAMINATIONS 2002 HONOURS

Denominated Degree in Biotechnology (4BY 221)

BIOTECHNOLOGY (BG 401)

Fourth Paper

External Examiner: Professor D. Apps

Time Allowed: *Three* hours

Write on *three* of the following topics, choosing at least *one* from each section.
Start each question in a new answer book and write the number on the front.

SECTION A

1. Discuss the role of adaptor molecules and molecular scaffolds in signal transduction.
2. Describe the method you would select to produce human therapeutic antibodies paying particular attention to the advantages and disadvantages of particular choice of libraries and antibody selection methods.
3. Design a downstream processing protocol for a recombinant protein. Explain in detail your reasons for choosing these methods rather than the alternatives available.

SECTION B

4. 'Stem cell technology will revolutionise treatment of human diseases'. Discuss.
5. 'Basic research drives biotechnology or *vice versa*'. Discuss
6. 'Cell survival in a multicellular organism depends on an elaborate intercellular signalling networks that co-ordinates growth, differentiation and metabolism.' Discuss this statement with a particular reference to the role of calcium ions in cellular signalling.