

NATIONAL UNIVERSITY OF IRELAND, GALWAY
Ollscoil na hÉireann, Gaillimh

Summer Examinations, 2002 - Honours
B.Sc. and B.Sc. (Biomedical Science) Degree Examinations
BIOCHEMISTRY (BI401)
Second Paper

Extern Examiner: Dr. D.K. Apps

Time allowed: *Three Hours*

Write on **three** of the following topics, choosing at least one from each section.
Please start each topic with a new answer book and clearly indicate the number
on the front.

Section A

1. Discuss the role of DNA repair in genome maintenance in eukaryotic cells.
2. Discuss the G1/S damage checkpoint with reference to its biochemical organisation and relevance to cancer.
3. Discuss the process of transcriptional regulation in eukaryotic cells, with reference to transcription factors, chromatin structure and coactivators.
4. *Drosophila* is an excellent model species for developmental biology. Describe the role of transcription factors in (a) establishing the anterior-posterior axis and (b) segmentation along this axis in the *Drosophila* embryo.

P.T.O.

Section B

5. 'Viruses are totally different from bacteria'. Discuss this statement, with particular reference to replication, assembly and therapeutic strategies.
6. Write an essay on cell adhesion. Include the structure and function of different types of cell adhesion molecules, with emphasis on their role in cell signalling.
7. Explain how antigens are processed by antigen presenting cells.