

NATIONAL UNIVERSITY OF IRELAND, GALWAY
Ollscoil na hÉireann, Gaillimh

Summer Examinations, 2002 - Honours
B.Sc. and B.Sc. (Biomedical Science) Degree Examinations
BIOCHEMISTRY (BI401)
First 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. With respect to biological catalysis, give a general account of the factors that contribute to enhancement of the rate of reactions.
2. Discuss the biochemical basis for the common morphological features of apoptosis, with particular reference to the role of proteolysis.
3. Give an account of the process of glycoprotein N-glycan biosynthesis in eukaryotic cells, outlining key interspecies similarities and differences and the role of glycosyltransferases and glycosidases in generating N-glycan diversification.
4. Give an account of the manner by which glycosylation, and alterations in glycosylation, may affect tumour development, differentiation and metastasis.

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Section B.

5. Describe the major functions of membrane lipids.
6. Discuss current understanding of the mechanism(s) of action of insulin.
7. 'Action potentials are propagated unidirectionally without diminution'. Discuss this statement with particular reference to the biochemical mechanisms involved.