

NATIONAL UNIVERSITY OF IRELAND, GALWAY

Ollscoil na hEireann, Gaillimh

Second Science Examination

2001-2002

Semester II, Autumn

BIOCHEMISTRY 'The Cell Factory' (BI212)

External Examiner: Dr. D. Apps

Time allowed: Three Hours

INSTRUCTIONS:

SECTION A (20 marks)

Answer all questions.

Write answers on examination paper.

SECTION B

Answer 4 questions.

Write answers in answer books.

(20 marks per answer.)

SECTION B

Answer 4 questions.

1. Write an essay on the Krebs' (citric acid) cycle. Include the functions, reactions and control of the cycle.
2. Give an account of photophosphorylation and describe the role of the chloroplast.
3. Describe two of the following:
 - (a) ATP synthase action.
 - (b) Carbon dioxide fixation.
 - (c) The mechanism of photoreception.
 - (d) Vitamin D function.
4. Describe the transport of fatty acids into the mitochondria in preparation for their oxidation.
5. Using diagrams describe the reactions of the pentose phosphate pathway and explain how it is regulated.
6. Outline the biochemical basis of two inborn errors of amino acid metabolism.
7. Outline the mechanism of action of hormones, with particular reference to the different types of signal transducers.
8. Describe the Sanger chain termination method for DNA sequencing.