

Ollscoil na hÉireann, Gaillimh.

NATIONAL UNIVERSITY OF IRELAND, GALWAY

AUTUMN EXAMINATIONS, 2002

FIRST YEAR BIOMEDICAL ENGINEERING

Biology BO106

Time allowed: *Three* hours.

Answer *five* questions, at least *two* from each section.

Use a separate answer book for *each* section.

Section A

Professor M. Zalewski
and internal examiners

- Q 1. Describe in illustrated detail the structure and functions of the following components of the endomembrane system of the animal cell: endoplasmic reticulum; golgi apparatus.
- Q 2. Give an account of the structure and functions of loose connective tissue.
- Q 3. List the functions of blood and describe blood clotting in illustrated detail.
- Q 4. Describe, with the aid of diagrams, the three functional components of the mammalian respiratory system.
- Q 5. Write an account of the effects on the human body of the hormones produced by the thyroid and parathyroid glands.

Section B

Professor M. Dring, Professor C. Brown, Dr. D. Apps,
and internal examiners.

- Q 6. Write an essay on 'Fungi and Biotechnology'.

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- Q 7. Describe the mechanisms by which the human body defends itself against infection by bacteria and viruses.
8. Write an essay on 'Sex linked Inheritance'.
9. Describe the structure of DNA and the process of DNA replication.
10. Answer **two** of the following:
- (a) Describe the structures and functions of lipids in living cells
 - (b) Discuss the various ways in which enzyme activity is regulated in the cell.
 - (c) Outline the three major pathways involved in cellular respiration
 - (d) Explain what is meant by the genetic code.