

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

Summer Examinations, 1998

B.Sc. (Hons.)

PHYSIOLOGY

FOURTH PAPER

Professor N.G. McHale

Professor M.T. Kane

Dr. D.S. Colbert

Dr. A.C. Hynes

Time Allowed: **Three** hours. Answer **one** question from Section A and **four** questions from Section B.

Please use a **separate** Answer Book for each **question**

SECTION A

1. "Funding available for newly graduated physiologists to study any area of personal physiological interest" Draft an application to reply to the above advertisement.
2. Describe the layout of a new physiology laboratory; the techniques to be used in this laboratory will include tissue culture, radioisotope studies, electrophoresis and chromatography.
3. What physiological or biological discovery since the year 1990 has most impressed you. Explain your reasons.
4. Cloning of human body organs could be of major medical benefit but there are major technical and ethical problems. Suggest a plan to overcome or reduce the technical and ethical problems.

SECTION B

5. Write an essay on the role played by bile salts in fat digestion.
6. Describe the role of the stomach in the digestive process.
7. Why is the adrenal cortex considered to be a gland for combating stress.
8. Explain the mechanism for the goitre seen in simple iodine deficiency.
9. What is the explanation for the resting membrane potential?

10. What is the form of the cardiac action potential in the sino-atrial node and in ventricular muscle? What causes the plateau stage in ventricular muscle?
11. Discuss the role of the peripheral chemoreceptors. Why are they not activated in carbon monoxide poisoning?
12. Compare the control of cerebral and skin blood flow.