

OLLSCOIL NA hÉIREANN, GAILLIMH  
NATIONAL UNIVERSITY OF IRELAND, GALWAY

**B.Sc. (General) and Third Science Examination Semester 2, 2000**

**PHYSIOLOGY (SI314, SI316)**

Time Allowed: 3 Hours

Examiners: Prof. McLoughlin, Prof. Kane, Dr. Colbert, Dr. Quinlan, Dr. Hynes,  
Dr. Quinlan

Please use a Separate Answer Book for Each Section

**SECTION A: INTEGRATIVE PHYSIOLOGY (SI314)**

Answer THREE questions out of SIX:

- A1. Discuss the nervous system control of arterial blood pressure.
- A2. Write an essay on the neural control of digestion.
- A3. Write short notes on two of the following (not more than one and a half pages)
  - (a) the effect of long term increased  $\text{PCO}_2$  on respiration
  - (b) Effect of reduced arterial  $\text{O}_2$  on respiration
  - (c) The neural respiratory centres.
- A4. Discuss the control of water balance in the body.
- A5. Define systemic hypertension. What types of hypertension do you know?  
How might the kidneys be involved in the genesis of hypertension?
- A6. What are the physiological responses to a failing heart?

**SECTION B: CELL PHYSIOLOGY (SI 316)**

Answer THREE questions out of FIVE. At least one question **MUST** be either Q. B7 or Q. B10.

- B7. Describe the structure and function of two different types of cell-cell junctions.
- B8 Discuss the frog skin as a transport model.
- B9 Write a broad introductory essay on the various types of transport systems in cells (NOT more than 3 pages).
- B10 Compare facilitated transport and secondary active transport. Give one or two examples of each.
- B11 Describe the mechanism of acid secretion in the stomach.