

Ollscoil na hÉireann, Gaillimh      GX\_\_\_\_\_

National University of Ireland, Galway

Semester II Examinations, 2004/2005

**Front Page Template**

Exam Code(s)	4BS2
Exam(s)	4 <sup>th</sup> Science
Module Code(s)	SI404
Module(s)	Physiology
Paper No.	III
Repeat Paper	
External Examiner(s)	Dr. A.R. Noble
Internal Examiner(s)	Prof. M.T. Kane, Dr. D. Colbert
	Dr. A. Hynes, Dr. D. Finn

Instructions:      Answer **FOUR** Questions.

Students must attempt **One** Question from Each Section.

Use a Separate Answer Book for each section.

Duration	Three hours
No. of Answer books	Four

**Requirements:**

Handout	
MCQ	
Statistical Tables	
Graph Paper	
Log Graph Paper	
Other Material	

No. of Pages	
Department(s)	Physiology

OLLSCOIL NA hÉIREANN, GAILLIMH  
NATIONAL UNIVERSITY OF IRELAND, GALWAY

Semester II, Summer 2005

B.Sc. (Hons.)

PHYSIOLOGY

**Paper III**

**Examiners** Dr A.R. Noble, Prof. M. Kane, Dr. D. Colbert, Dr. A. Hynes, Dr. D. Finn

Answer **FOUR** Questions.  
Students **MUST** attempt **One Question from Each Section**.  
Use a **Separate Answer Book** for each section.

**Time Allowed** Three Hours

**Section A Aspects of Pathophysiology**

- A1** Describe how cells increase and decrease their volume in response to altered local conditions.
- A2** Define the systemic inflammatory response syndrome (SIRS) and list some of the more obvious changes that occur in this condition.

**Section B Reproductive Physiology**

- B1** Write an essay on the process of mammalian sex determination.
- B2** Discuss the production of the male gamete and the events involved in fertilization of the oocyte by these gametes.

**Section C Pain**

- C1** Write an essay on the cellular, neurochemical and molecular mechanisms underlying the development and maintenance of chronic neuropathic pain.
- C2** Describe the principal physiological mechanisms involved in the inhibitory modulation of nociception.

**Section D                      Scientific Discoveries**

- D1**                      Write an essay on the work leading to the discovery by Furchgott and others that endothelial-derived relaxing factor was nitric oxide  
OR  
Write an essay on the work leading to the discovery of the first hypothalamic factor from the early work of Harris to the later work of Schally and Guillemin.
- D2**                      Give an account with at least one example in each case how the pathway to major scientific discoveries was affected by (a) fortuitous good luck, (b) difficult relationships between researchers, (c) by the use of different species and (d) by the development of a research technique.