

Semester II Examinations, 2003/2004
Front Page Template

Exam Code(s) 1PY1
3BG1
3BS9

M.Sc. (Medical Physics)
B.E Degree (Biomedical Engineering)
B.Sc. Degree (Undenominated)

Module Code(s) SI317-1

Module(s) Human Body Function

Paper No. _____
Repeat Paper _____ Special
Paper _____

External Examiner(s) Dr. D. Marples

Internal Examiner(s) Prof. M.T. Kane, Dr. K.. Doyle

Dr. A. Henry, Dr. L. Quinlan

Instructions: Candidates must answer **6** questions out of 8

Duration Three hours
No. of Answer books

Requirements:
Handout _____
MCQ _____
Statistical Tables _____
Graph Paper _____

Log Graph Paper _____
Other Material _____

No. of Pages 3
Department(s) Physiology

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

3rd Biomedical Engineering / 3rd Science Examination / Medical Physics
HUMAN BODY FUNCTION (SI 317)

Spring 2004

Time Allowed: 3 Hours

Prof. M.T. Kane, Dr. K. Doyle,
Dr. A. Hynes, Dr. L. Quinlan, Dr. A. Henry

Answer six questions, (a) OR (b). Answers should be approx. half page to one page in length.

1. (a) Write short notes (5-10 lines) on each of the following, DNA, osmosis and Sugars.

OR

- (b) What is oncotic pressure and what role does it play in normal body function.

2. (a) Draw and label a nerve action potential and list 4 properties of action potentials

OR

- (b) Describe how the cell resting membrane potential is formed.

3. (a) Describe the functions of the arterioles, capillaries, and veins in the systemic circulation.

OR

- (b) Describe the series of events that occur in the cardiac cycle from the period of ejection in ventricular systole in one cardiac cycle to the same point in the next cardiac cycle.

4. (a) Describe the ABO system and the Rhesus system of blood groups. What happens when a mismatched blood transfusion is given?

OR

(b) Describe the process of normal blood clotting. List possible causes of abnormal bleeding and possible causes of abnormal excessive clotting.

5. (a) Outline the involvement of rods and cones in vision.

OR

(b) Describe the role of the inner ear in hearing.

6. (a) Write a short essay on the secretions of the stomach.

OR

(b) Write a short essay on the digestion and absorption of protein in the gastrointestinal tract.

7. (a) Draw a labelled diagram of a nephron and indicate the main functions carried out by each part.

OR

(b) Describe glomerular filtration in the kidneys and what is meant by the glomerular filtration rate (GFR).

8. (a) Describe how antibodies contribute to immunity

OR

(b) Briefly discuss the endocrine actions of growth hormone