

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

3rd Mechanical Engineering / 3rd Science Examination
HUMAN BODY FUNCTION (SI 317)

Spring 2000

Time Allowed: 3 Hours

Prof. J.V. McLoughlin, Prof. M.T. Kane, Dr. A. Hynes, Dr. L. Quinlan

Answer six questions. Answers should be approx. half page to one page in length for each question subset (a) or (b)

1. (a) Write short notes (5-10 lines) on each of the following:-
sugars, nucleotides and proteins.
(b) List the major constituents of body fluids and their main functions.
2. (a) Define the cell resting membrane potential and describe its origin.
(b) Draw and label a nerve action potential and describe how it travels along the nerve
3. (a) Write a note on erythrocytes, including the function of Hb
b) Discuss the structure and function of antibodies
4. (a) Draw and label an electrocardiogram indicating briefly what each wave represents
(b) Write a short note on atherosclerosis
5. (a) Discuss the hormones of the Adrenal Medulla
(b) Discuss the main aspects of carbohydrate digestion
6. (a) Define the following:- resting tidal volume, vital capacity and residual volume.
(b) Describe the carriage of carbon dioxide in the blood.
7. (a) Draw a labelled diagram of a nephron and indicate the main functions carried out by each part.
(b) Describe the filtration process of the kidneys and the main constituents of tubular fluid.
8. (a) Describe the various roles of the hypothalamus
(b) Describe the stretch reflex (Knee jerk reflex)