

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2016

Human Anatomy and Physiology (Continuous assessment module)

Module Code: PHOL6006

School: Science and Informatics

Programme Title(s): Bachelor of Science (Honours) Herbal Science
Bachelor of Science (Honours) Nutrition and Health Science
Bachelor of Science (Honours) Pharmaceutical Biotechnology
Bachelor of Science Applied Biosciences
Bachelor of Science (Honours) Biological Sciences (Common Entry)

Programmes Code(s): SHERB_8_Y1
SNHSC_8_Y1
SPHB1_8_Y1
SBIOS_7_Y1
SCEBS_8_Y1

External Examiner(s): Dr Tom O Connor

Internal Examiner(s): Dr Fiona O'Halloran
Dr Aoife McCarthy
Dr Karen Finn

Instructions: Answer question one **and** three other questions.
All questions carry equal marks.

Duration: 2 hours

Sitting: Autumn 2016

Requirements for this examination:

Note to Candidates: Please check the Programme Title and the Module Title to ensure that you have received the correct examination. If in doubt please contact an Invigilator.

Q1. Compulsory question. Answer all parts.

- (a) For each of the following enzymes, state the substrate and the product
- (i) Amylase
 - (ii) Maltase
 - (iii) Pepsin
 - (iv) Lipase
- (4 marks)
- (b) Describe how urinalysis of glucose can be used to indicate a specific disease.
- (4 marks)
- (c) Explain what is meant by the following blood types:
- (i) AB positive (AB^+)
 - (ii) O negative (O^-)
- (4 marks)
- (d) In an experiment to test the glucose concentration in a blood sample, the analyst used a glucose standard and a positive control. What is the purpose of the standard and the control in laboratory experiments?
- (4 marks)
- (e) Distinguish between body mass index (BMI) and waist-hip ratio (WHR) as health indicators.
- (4 marks)

Q2. Write a short note on each of the following:

- (a) Thyroid gland hormones (5 marks)
- (b) Hormonal feedback loops (5 marks)
- (c) Mechanism of action of steroid hormones (5 marks)
- (d) Key hormones involved in kidney function (5 marks)

Q3. Write an essay on the function of the respiratory system under the following headings:

- (a) Gas exchange (10 marks)
- (b) Respiration (10 marks)

Q4.

- (a) Outline the four tissue layers of the gastrointestinal tract wall. (8 marks)
- (b) Describe the process of chemical gastric digestion. (8 marks)
- (c) State two functions of the large intestine. (4 marks)

Q5.

- (a) Using a labelled diagram, outline the structure of a neuron. (10 marks)
- (b) Describe the sequence of events that result in a nerve impulse. Use a labelled diagram to support your answer. (10 marks)

Q6.

- (a) List three differences between the innate and the adaptive immune system. (5 marks)
- (b) Write descriptive notes to explain the role of the following cells in the immune system:
 - (i) B-lymphocytes (5 marks)
 - (ii) T-lymphocytes (5 marks)
 - (iii) Natural killer cells (5 marks)