

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Autumn Examinations 2014/15

Module Title: Cellular Biotechnology

Module Code: BIOT6006

School: Science & Informatics

Programme Title: BSc (Hons) in Pharmaceutical Biotechnology – Year 2
BSc (Hons) in Nutrition and Health Science – Year 2

Programme Code: SPHBI_8_Y2
SNHSC_8_Y2

External Examiner(s): Dr Cormac Gahan

Internal Examiner(s): Dr Rosemary Rea

Instructions: **Answer Question 1 and 2 other questions.**
All questions carry equal marks.

Duration: T 2 hours

Sitting: Autumn 2015

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 paper.
If in doubt please contact an Invigilator.

- Q1.** Describe the growth of BHK cells in the laboratory using the following headings:
- Growth media components, preparation and sterility testing **(20 marks)**
 - Provision of incubation requirements **(10 marks)**
 - Description and use of haemocytometer for cell counting **(20 marks)**
- (Total 50 marks)**

- Q2.** (a) Discuss cryopreservation of cells using the following headings:
- definition and aims **(6 marks)**
 - steps to ensure successful cryopreservation and subsequent resuscitation **(5 marks)**
 - storage of cell lines **(4 marks)**
 - inventory control **(5 marks)**
 - cryopreservation procedure **(12 marks)**
 - resuscitation procedure **(10 marks)**
- (b) Distinguish between the following:
- Primary culture and secondary culture **(4 marks)**
 - Finite cell line and continuous cell line **(4 marks)**

(Total 50 marks)

- Q3.** (a) Describe in detail the components of mammalian cell culture medium **(30 marks)**.

- (b) Discuss two common cell culture contaminants **(20 marks)**.

(Total 50 marks)

- Q4.** Discuss the following:
- diffusion and osmosis **(24 marks)**
 - environmental monitoring of cleanrooms **(16 marks)**
 - indirect measurement of mammalian cell growth using glucose as an example **(10 marks)**

(Total 50 marks)