CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Autumn Examinations 2013

Module Title: Formulation

Module Code: **CHEI7001**

School: **Biological Sciences**

Programme Title: **BSc in Pharmaceutical Biotechnology**

Programme Code: **SFSTE_8_Y3**
SNHSC_8_Y3
SPHBI_8_Y3

External Examiner(s): Dr. Stephen Fitzpatrick and Bernadette Whelan
Internal Examiner(s): Dr Caroline O' Sullivan and Dr Sandra Lenihan

Instructions: Answer FOUR questions. All questions carry equal marks
Seperate Answer Books when answering questions belonging to Dr Caroline O' Sullivan (Q1, Q2 and Q5(a) and Q 5(b)) and to Dr. Sandra Lenihan (Q3, Q4 and Q5 (c) and (d)).

Duration: 2 Hours

Sitting: Autumn 2013

Requirements for this examination:
Calculator

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.

(a) List the **FOUR** API classes and give an example of a drug from each class. (4 marks)

(b) Write a brief note on available pharmaceutical dosage forms. (7 marks)

(c) 'Write a brief note on routes of pharmaceutical administration delivery. (14 marks)

(25 marks)

Q2.

(a) What is the difference between Drug Encapsulation and Drug Entrapment? (5 marks)

(b) Write a note on **biodegradable polymers** under the following headings: synthetic versus natural polymers, degradation mechanisms, factors that affect the biodegradation and methods of studying polymer degradation. (20 marks)

(25 marks)

Q3.

(a) Solid state properties have a key role in formulation. Outline the impact of crystal size. (4 marks)

(b) Define hygroscopicity and outline what drug properties can it affect. (6 marks)

(c) Collate a frequency distribution curve for the following Starch data and determine the mode:

Sieve Size (um)	**Mass of sample retained on sieve (mg)**
1000	4.5
710	10.2
500	21.3
250	31.5
150	15.7
100	11.2
53	4.4
Pan	1.2

(13 marks)
(25 marks)

Q4.

(a) Describe the dissolution process in detail. Schematics can be used to support your answer. (13 marks)

(b) Identify the factors that affect dissolution and discuss how these relate to the dissolution profile of an enteric coated tablet e.g. a unseal tablet. (12 marks)

(25 marks)

Q5.

(a) What are **SEVEN** factors affecting drug presentation to the body? (7 marks)

(b) What is Granulation and why do we granulate? (5 marks)

(c) Write a brief note on shelf life determination (7 marks)

(d) Outline the purpose of an accelerated stability programme. (6 marks)

(25 marks)