

**CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

Autumn Examinations 2014

Module Title: Phytochemistry & Pharmacognosy

Module Code: CHEO8002

School: Science

Programme Title: B.Sc. (Honours) in Herbal Science

Programme Code: SHERB_8_Y3

External Examiner(s): Prof. Olivia Corcoran
Internal Examiner(s): Germain Levieille

Instructions: Answer the compulsory question 1 and only 3 of the other 4 questions. Each question carries a equal mark weighing of 25%. Please state clearly the questions addressed in your paper.

Duration: 2 Hours

Sitting: Autumn 2014

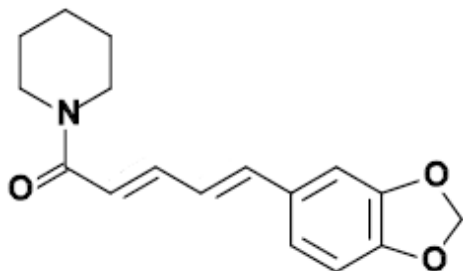
Requirements for this examination:

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.

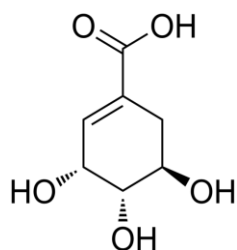
Question 1 Compulsory

A) Please give their name and their phytochemical class for each of the following compounds (3 marks each)

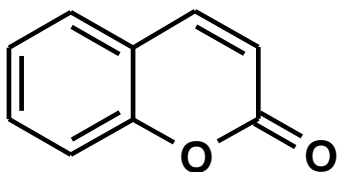
i)



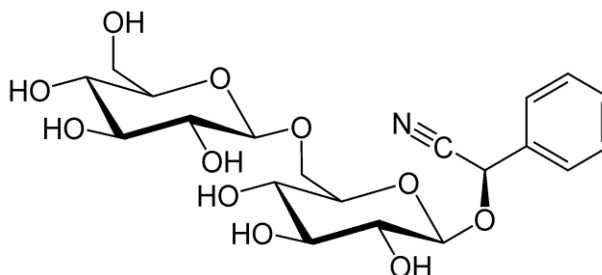
ii)



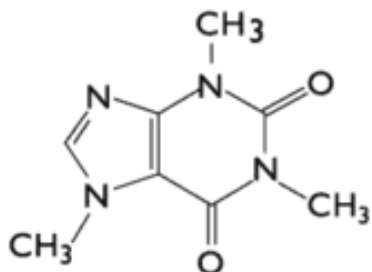
iii)



iv)



v)



B) Draw the molecular representation of: (2.5 marks each)

- i) a Flavanone
- ii) Anthraquinone
- iii) Resveratrol
- iv) Gallic acid

Answer only three of the following four questions

- Q2.**
- A. What are the different types of steroidal cardiac glucosides? (10 marks)**
 - B. Discuss their biological properties and applications. (8 marks)**
 - C. Elaborate on the relation between chemical structure of cardiac glycosides and their biological activity (7 marks)**
- Q3.**
- A. What are the key physico-chemical characteristics of tannins (8 marks)**
 - B. Discuss the different types of tannins and elaborate on their classification based on their chemical structure (10 marks)**
 - C. Elaborate on biological properties of tannins in the context of their uses, risks and applications. (7 marks)**
- Q4.**
- Describe the biosynthetic pathway leading to the accumulation of phenolic phytochemicals. Using diagrams, you will particularly indicate the precursors derived from the primary metabolism and the key metabolites leading to the various classes of phytochemicals. (25 marks)**
- Q5.**
- A. Give a definition of Alkaloids. (5 marks)**
 - B. Elaborate on how the chemical properties of alkaloids are used for extraction of alkaloids. Give the examples of caffeine extraction for details (12marks)**
 - C. Discuss the classification of alkaloids (8 marks)**