

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Autumn Examinations 2014-2015

Module Title: **Phytochemistry & Pharmacognosy**

Module Code: **CHEO8002**

School: Biological Sciences

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 2015

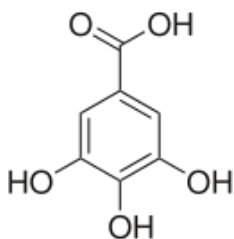
Requirements for this examination:

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.

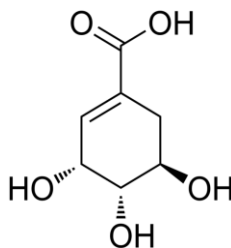
Question 1 Compulsory

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

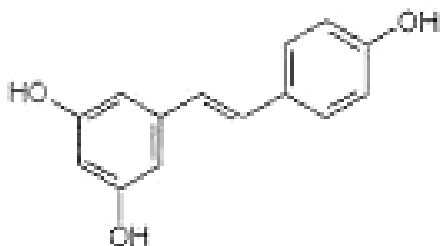
i)



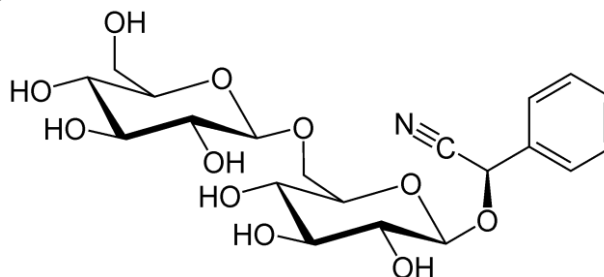
ii)



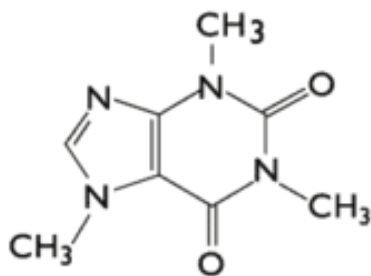
iii)



iv)



v)



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

- i) a Flavanone
- ii) Coumarin
- iii) Anthraquinone
- iv) Resveratrol

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)
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- Q3. A. What are the lignans and elaborate on their chemical structure. (7marks)
- B. Discuss the metabolic origin of the lignans, and their structural relations with other related compounds. (8 marks)
- C. Elaborate on biological properties of lignans in the context of their bioactivities, metabolites and dietary importance. (10 marks)
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- 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)
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- Q5. A. Give a definition of Alkaloids. (5 marks)
- B. Elaborate on how the chemical properties of alkaloids are used for extraction of alkaloids. (10 marks)
- C. Give an example of purine alkaloids. (4 marks)
- D. Discuss the classifications of alkaloids. (6 marks)