



UNIVERSITY OF RUHUNA – FACULTY OF MEDICINE
ALLIED HEALTH SCIENCES DEGREE PROGRAMME
SECOND BPHARM PART II EXAMINATION – DECEMBER 2016
PH 2254 PHARMACOGNOSY IB (SEQ)

TIME: THREE HOURS

INSTRUCTIONS

- Answer **all** questions in the given booklet/s.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

01. Answer all parts.

- 1.1 Explain the importance/s to classify glycosides according to the glycosidic bond. (25 marks)
- 1.2 Briefly explain the types of natural hallucinogens and their possible medicinal uses. (25 marks)
- 1.3 Explain the social effect of introducing narcotics in medicine. (25 marks)
- 1.4 Explain the reason why tannin containing crude drugs are more effective. (25 marks)

02. Answer all parts.

- 2.1
2.1.1 Complete the table given below.

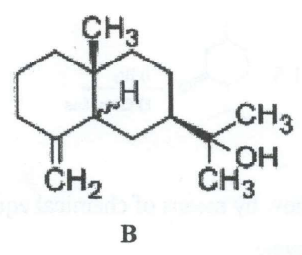
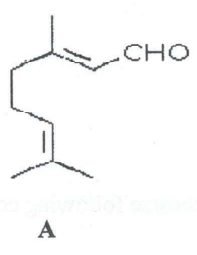
Type of glycoside	Source	Constituents	Uses
Alcoholic		salicylic acid	
Steviol		stevioside	
Coumarin		apterin	
Steroidal		digitoxin, digoxin,	

(5 x 8=40 marks)

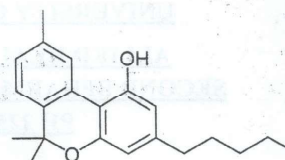
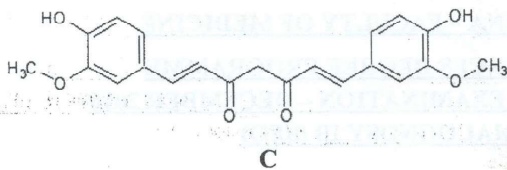
- 2.1.2 Explain the mode of action of Roobibos tea in treatment for urinary tract infections. (10 marks)

2.2

- 2.2.1 Name the chemical structures, **A-D** given below. (20 marks)



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2.2.2 Write down main plant source of the compounds B, C and D named in the question 2.2.1.

(12 marks)

2.2.3 List **two** (02) pharmaceutical uses of each main plant source of B, C and D written in 2.2.2.

(18 marks)

03. Write short accounts on chemical constituents and pharmaceutical uses of followings. (Chemical structures of the compounds should be drawn where required).

3.1 Peppermint

(25 marks)

3.2 Cinnamon

(25 marks)

3.3 Nutmeg

(25 marks)

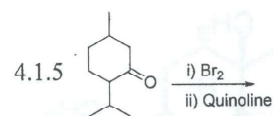
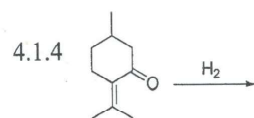
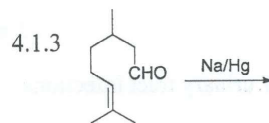
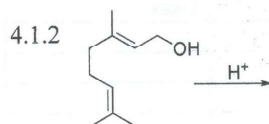
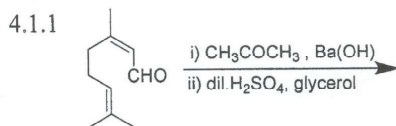
3.4 Clove

(25 marks)

04.

4.1 Give the chemical structures of the product(s) in each of the following reactions.

(30 marks)



4.2 Show by means of chemical equations how you would synthesize following compound from α -pinene.

(30 marks)

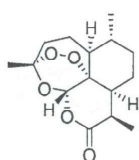


4.3 List two (02) pharmaceutical uses of each of the following terpenoids. (20 marks)

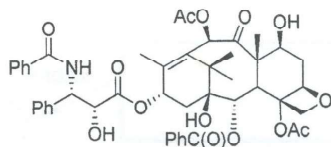
- 4.3.1 Eucalyptol
 4.3.2 Camphor
 4.3.3 Menthol
 4.3.4 Thymol

4.4 Following structures represent pharmacologically important terpenoid drugs. Identify the chemical structures, A-D and list the class of terpenoid which they belong to.

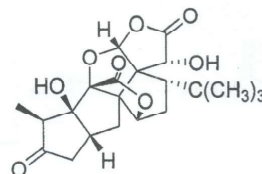
(20 marks)



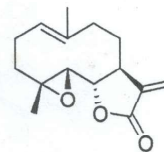
A



B



C



D

5.

5.1 Alkaloids are generally defined as 'physiologically active basic compounds of plant origin, in which at least one nitrogen atom forms part of a cyclic system'. However, there are few exceptions.

Name two of such exceptions.

(10 marks)

5.2 What are the major functions of alkaloids in plants?

(20 marks)

5.3 How you would classify following alkaloids based on the heterocyclic nucleus present.

(20 marks)

- 5.3.1 Hygrine
 5.3.2 Atropine
 5.3.3 Quinine
 5.3.4 Ergometrine
 5.3.5 Caffeine

5.4 A number of psychoactive substances have been isolated or derived from natural sources which include plants, mushrooms and animals. Provide the names of psychoactive substances isolated or derived from following species.

(30 marks)

- 5.4.1 *Erythroxylum coca*
 5.4.2 *Cannabis sativa*
 5.4.3 *Bufo alvarius*
 5.4.4 *Amanita muscaria*
 5.4.5 *Lophophora williamsii*
 5.4.6 *Claviceps purpurea*

5.5 List the source and a medicinal use of each of the following.

(20 marks)

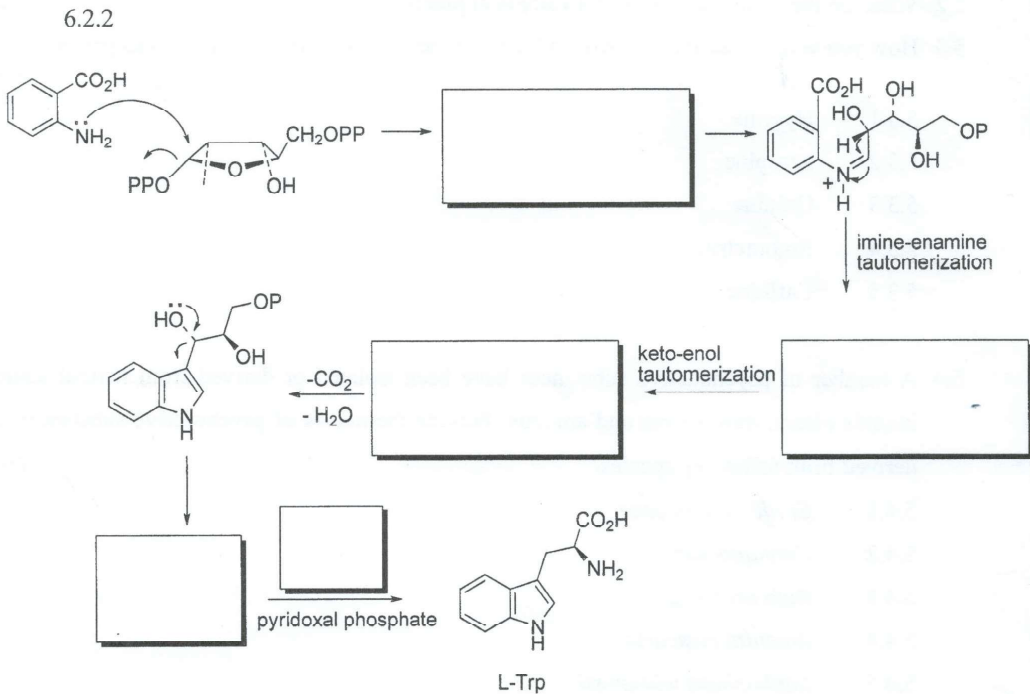
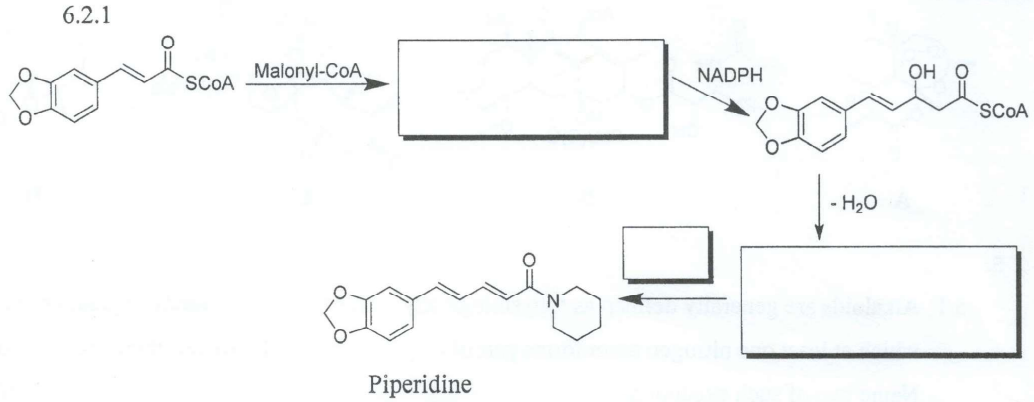
- 5.5.1 Pale Catechu
 5.5.2 Black catechu
 5.5.3 Nutgalls
 5.5.4 Myrobalan

06.

6.1 Briefly describe the structural features to distinguish the following pairs. Use appropriate chemical structures to justify your answer. (40 marks)

- 6.1.1 Cardenolides and bufadienolides
- 6.1.2 Ephedrine and pseudo-ephedrine
- 6.1.3 Solanum alkaloids and veratrum alkaloid
- 6.1.4 Nicotine and nornicotine

6.2 Write down the missing intermediates of the biosynthesis of following compounds. (40 marks)



6.3 List the toxic principles of following poisonous plants. (20 marks)

- 6.3.1 *Strychnos nux-vomica*
- 6.3.2 *Gloriosa superba*
- 6.3.3 *Abrus precatorius*
- 6.3.4 *Thevetia peruviana*

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