Index no:.....

UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

SECOND BPHARM PART II EXAMINATION – DECEMBER 2017/JANUARY 2018

PH 2254 PHARMACOGNOSY IB (SEQ)

TIME: THREE HOURS

INSTRUCTIONS

- There are six (**06**) questions in the Parts A, B and C of the SEQ paper.
- Answer **each** part in separate booklet provided.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

Part A

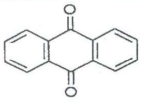
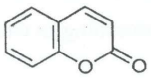
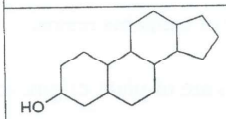
1. Glycosides are compounds containing a carbohydrate and a noncarbohydrate residue in the same molecule.

1.1. Explain briefly the classification of glycosides on the basis of type of the glycone and type of the bond separately. (***15 marks***)

1.2. What is the importance of knowing the type of bond involved in glycosides? (***15 marks***)

1.3. What are the advantages of having a sugar molecule attached in glycosidic molecules? (***12 marks***)

1.4. By identifying the structural aglycones given in the table below, write down the common name and a plant source of each aglycone. (***18 marks***)

Type of aglycone	common name	Example for plant source
	I.	ii.
	iii.	iv.
	v.	vi.

1.5. What are the medicinal and commercial importance of following glycosides? (***40 marks***)

1.5.1. Flavonoid glycoside

1.5.2. Steviol glycoside

1.5.3. Cyanogenic glycoside

1.5.4. Phenolic glycoside

2. Write short notes on following.

2.1. The medicinal uses of tannins with examples. (*25 marks*)

2.2. The mechanism of tannins in healing wounds in plants and animals. (*25 marks*)

2.3. The main steps in biosynthesis of monoterpenes. (*25 marks*)

2.4. The production of different prostaglandins starting from arachidonic acid. (*25 marks*)

3. Terpenoids, are used for the treatment of human diseases.

3.1. What are the commercially renowned terpeniods and their medical applications at present? (*21 marks*)

3.2. Write the potential sources and medicinal uses of terpenes given below. (*24 marks*)

Name of terpene	Available sources	Medicinal use
Phytol	*Lucas volkensii*	precursors of vitamin E and K
Pyrethrine		
Parthenolide		
Limonene		

3.3. Explain the **three** main factors that should be considered in mass production of herbal/generic drugs. (*30 marks*)

3.4. What are the problems associated with drug discovery? (*25 marks*)

4. Answer following questions.

4.1. Briefly explain the threats associated with traditional medicine. (*25 marks*)

4.2. Briefly explain your suggestions in order to revive herbal medicine. (*25 marks*)

Part B

4.3. Answer all parts.

4.3.1 Name and draw **two** main chemical constituents containing in cannabis resins. (*10 marks*)

4.3.2 Briefly describe pharmacological importance of cannabis resins. (*15 marks*)

4.4. Eventhough the majority of psychoactive compounds are of plant origin, some derivatives are even found in amphibia.

4.4.1 List **two** amphibian species which produce psychoactive compounds. (*10 marks*)

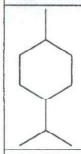
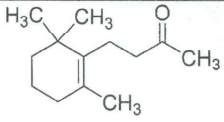
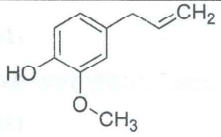
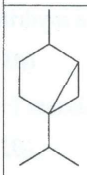
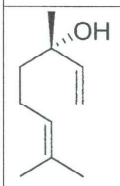
4.4.2 What is the compound produced by these amphibians responsible for the hallucinogenic activity? (*05 marks*)

4.4.3 The compound mentioned in 4.4.2 is structurally similar to a compound produced by *Psilocybe Mexicana*. State the name of this compound. (*05 marks*)

4.3.4 Indicate the heterocyclic group to which the compounds you mentioned in 4.4.2 and 4.4.3 are belong. (*05 marks*)

5.

5.1 Name the following chemical compounds containing in volatile oil. ***(25 marks)***

Structure	Name of the monoterpene
	
	
	
	
	

5.2 Briefly describe pharmacological values of shark liver oil. ***(25 marks)***

5.3 Briefly describe uses of clove oil in dentistry, aromatherapy, perfumery and food industry. ***(25 marks)***

5.4 Briefly describe bee wax manufacturing process of hot water extraction using forced immersion. ***(25 marks)***

Part C

6.

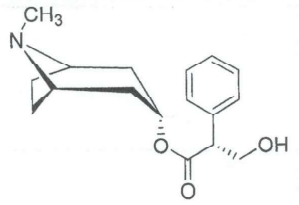
6.1 Briefly describe the distinguishing structural features of the following pairs. Use appropriate chemical structures to justify your answer. ***(30 marks)***

6.1.1 Quinine and quinidine

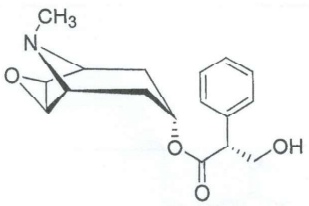
6.1.2 Morphine and codeine

6.1.3 Arecoline and arecaidene

6.2 Following two tropane type alkaloids are obtained from the roots and the leaves of deadly nightshade (*Atropa belladonna*).



A



B

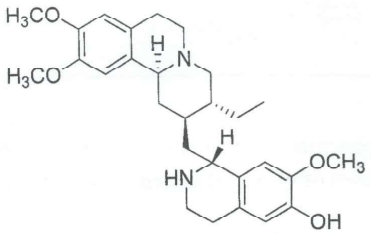
6.2.1 Identify the compounds **A** and **B**. ***(10 marks)***

6.2.2 Which compound has more effect on central nervous system? Justify your answer. ***(10 marks)***

6.2.3 Which compound from A and B is used to dilate the pupil of the eye (a mydriatic) for ophthalmic examinations? ***(05 marks)***

6.2.4 One of the compounds given above occurs in the plant as a racemic mixture (+) and (–) isomers. Identify the compound and give the common name. ***(05 marks)***

6.3 Structure of the alkaloid cephaeline is given below.



Cephaeline

6.3.1 Indicate the source of cephaeline. ***(05 marks)***

6.3.2 Name the heterocyclic class of alkaloids does cephaeline belong to. ***(05 marks)***

6.3.3 Write the name of the compound which is resulted when the –OH group of the molecule has been replaced with $-OCH_3$. ***(05 marks)***

6.3.4 Give **one** medicinal use of cephaeline. ***(05 marks)***

6.4 Colchicine has been widely used for centuries in the treatment of gout. Briefly describe the anti-inflammatory activity of this compound. ***(20 marks)***

@@@@@@@@