

Index No: .....



UNIVERSITY OF RUHUNA – FACULTY OF MEDICINE

ALLIED HEALTH SCIENCES DEGREE PROGRAMME

SECOND BPHARM PART II EXAMINATION – JANUARY 2014

PH 2254: PHARMACOGNOSY I B

TIME: 03 HOURS

INSTRUCTIONS

- Answer **all** questions.
- No paper should be removed from the examination hall.
- Marks will be penalized for illegible handwriting.
- Do not use any correction fluid.

01. Write short notes on the following.

1.1 Pectin (25 marks)

1.2 Agar (25 marks)

1.3 Sterculia (25 marks)

1.4 Tragacanth (25 marks)

02. Answer **both** parts.

2.1 Complete the following table. (60 marks)

Type of oil / wax	Source	Constituents	Uses
Cod liver oil	.....	1..... 2..... 3.....	1..... 2.....
Chaulmoogra oil	.....	1..... 2..... 3.....	1..... 2.....
Teel oil	.....	1..... 2..... 3.....	1..... 2.....
Bees wax	.....	1..... 2..... 3.....	1..... 2.....

2.2 Briefly describe the uses of the following oils.

(40 marks)

2.2.1 Olive oil

2.2.2 Castor oil

03. Answer **all** parts.

3.1 Write the structural formulae for the products formed when **citral** reacts with each of the following reagents. (50 marks)

- 3.1.1  $\text{KHSO}_4 / \Delta$
- 3.1.2 (i)  $\text{KMnO}_4$  (ii)  $\text{CrO}_3$
- 3.1.3  $\text{Ag}_2\text{O}$
- 3.1.4  $\text{Na} / \text{Hg}$
- 3.1.5 (i)  $\text{CH}_3\text{COCH}_3, \text{Ba}(\text{OH})_2$  (ii)  $\text{dil. H}_2\text{SO}_4, \text{glycerol}$

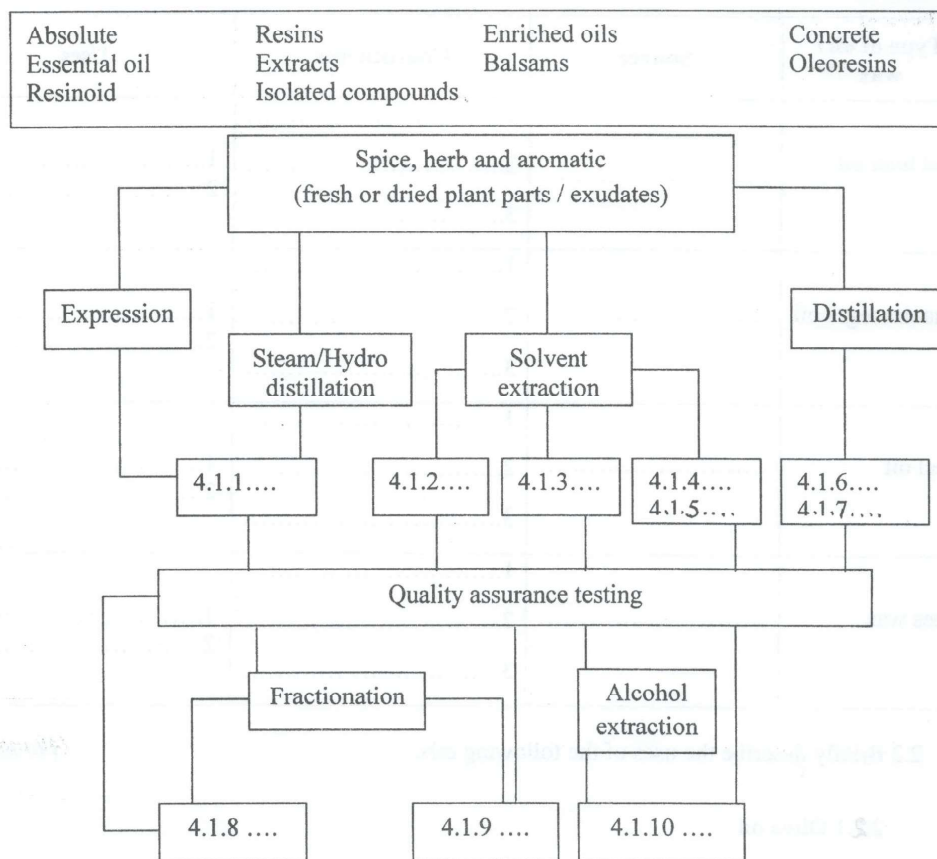
3.2 Name the structural differences between each of the following pairs of chemical compounds. (50 marks)

- 3.2.1 Geranial and neral
- 3.2.2 Iridoides and menthol
- 3.2.3 Thujane and camphane
- 3.2.4 Cardenolides and bufanolides
- 3.2.5  $\psi, \psi$  - carotene and  $\beta, \beta$  - carotene

04. Answer **all** parts.

4.1 Following diagram consists of extraction processes and products from spice, herb and aromatic plants. Complete it by adding the appropriate word from the box given below.

(30 marks)



Index No: .....

4.2 List **five (05)** volatile oils which can be isolated from *Zingiber officinale*. (20 marks)

4.3

4.3.1 Classify the glycosides according to their glycosidic bonds. (20 marks)

4.3.2 Write a short description on medicinally important plants mentioned below.

4.3.2.1 *Cassia angustifolia* (15 marks)

4.3.2.2 *Urginea maritima* (15 marks)

05. Answer all parts

5.1 Discuss briefly about **five (05)** poisonous plants in Sri Lanka giving relevant examples for poisonous chemical compounds and toxic parts. (50 marks)

5.2 List **five (05)** body effects of *Cannabis sativa*. (25 marks)

5.3 What is the major psychoactive substance isolated or derived from each of the following species? (25 marks)

5.3.1 *Cannabis sativa*

5.3.2 *Lophophora williamsii*

5.3.3 *Amanita muscaria*

5.3.4 *Psilocybe mexicana*

5.3.5 *Claviceps purpurea*

06. Answer all parts.

6.1 Briefly explain the classification of alkaloids based on

6.1.1 the chemical structure (20 marks)

6.1.2 biosynthetic origin of alkaloids (15 marks)

(You should state one example for each group/category and the structures where necessary).

6.2 Give the structures of product/s in each of the following reactions.

6.2.1 Scopolamine  $\xrightarrow{\text{Hydrolysis}}$

6.2.2 Papaverine  $\xrightarrow{\text{Cold dil. MnO}_4^-}$

6.2.3 Guvacine  $\xrightarrow{\text{Distilled with Zn dust}}$

6.2.4 Heroin  $\xrightarrow{\text{Hydrolysis}}$  (20 marks)

6.3 State the starting compounds of the following.

6.3.1 Frangula emodine

6.3.2 Erythromycin B

6.3.3 Cocaine

6.3.4 Shikimic acid

6.3.5 Colchicine

(10 marks)

Index No: .....

6.4

6.4.1 Explain briefly the biosynthesis pathway of saturated fatty acid. (15 marks)

6.4.2 Write the biosynthetic pathways of the following.

6.4.2.1 Acetate  $\longrightarrow$  Coniine (10 marks)

6.4.2.2 L- $\alpha$ -Amino adipic Acid  $\longrightarrow$  Benzylpenicillin (10 marks)

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