



UNIVERSITY OF JAFFNA, SRI LANKA

BACHELOR OF PHARMACY

THIRD YEAR FIRST SEMESTER EXAMINATION – FEBRUARY 2017

PHACN 3124 CHEMISTRY OF NATURAL PRODUCTS

Date: 16.02.2017

Time: 3 Hours

Answer all eight questions.

- 1 1.1 Classify the carbohydrates based on their chemical structures. (20 Marks)
- 1.2 Briefly describe the types of disaccharides with examples. (30 Marks)
- 1.3 How would you chemically convert a ketose to an aldose? (50 Marks)
  
- 2 2.1 Write the principles and procedures of solid phase organic synthesis of peptides. (30 Marks)
- 2.3 List the merits and demerits of the above mentioned synthesis procedure. (20 Marks)
- 2.4 Give the steps involved in the synthesis of cysteine from malonic ester. (50 Marks)
  
- 3 3.1 List the chemical parameters which are useful to analyse the fats and oils. (15 Marks)
- 3.2 Explain the extraction of lipids from plant and animal origin. (45 Marks)
- 3.3 Discuss the pharmaceutical uses of lipids with reasons. (40 Marks)
  
- 4 4.1 Name the natural sources for cardiac glycosides. (15 Marks)
- 4.2 Draw and explain the structures of different aglycons present in anthracene glycosides. (40 Marks)
- 4.3 Describe the different types of saponin glycosides. (45 Marks)
  
- 5 5.1 Draw the structures of the following compounds.  
A) Atropine  
B) Morphine  
C) Nicotine (30 Marks)
- 5.2 Write the principles and steps involved in the methods used for the estimation of N-methyl and methoxy groups in alkaloids. (30 Marks)
- 5.3 Sketch out the synthesis of cocaine. (40 Marks)

- 6 6.1 Give the basic structural unit of all terpenoids. (10 Marks)
- 6.2 Draw the structures, indicate their chemical classification and write the uses of the following terpenoids. (60 Marks)
- 6.2.1 Citral
- 6.2.2 Menthol
- 6.2.3 Camphor
- 6.3 Diagrammatically show the bioconversion of carotenoids to vitamin A in intestinal mucosal cells. (30 Marks)
- 7 7.1 Name three (03) vitamins which have the antioxidant property. (15 Marks)
- 7.2 Identify the vitamin consisting isoalloxazine ring and diagrammatically show how is it degraded when exposed to light under acidic condition. (35 Marks)
- 7.3 Briefly explain the reasons for Vitamin B<sub>6</sub> deficiency. (20 Marks)
- 7.4 Explain how Vitamin D is synthesised in human. (30 Marks)
- 8 Write a note on
- 8.1 cellulose. (30 Marks)
- 8.2 nomenclature of Alkaloids. (40 Marks)
- 8.3 primary structure of proteins. (30 Marks)