



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2019/2020
SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
PHARMACY (BPharm Level III)

PPD 320: PHARMACOGNOSY II

DATE: THURSDAY 1ST APRIL 2021

TIME: 8.00 A.M. – 11.00 A.M.

INSTRUCTIONS:

1. The paper consists of three sections: A, B and D
2. Answer All Questions
3. Answer Section A, B and C in separate booklets

Section A: Oils, Fats and Waxes

Short Answer Question (20 marks)

1. Using a sketch, illustrate the formation of fats and fixed oils from fatty acids. (2 marks)
2. Explain how the following pharmaceutical oils are extracted from natural sources.
 - a) Castor oil
 - b) Linseed oil (4 marks)
3. Describe the natural source and the principal chemical constituents of the following pharmaceutical waxes. (6 marks)
 - a) Beeswax
 - b) Spermaceti
4. Explain two pharmaceutical applications for each of the following resins. (8 marks)
 - a) Colophony
 - b) Myrrh
 - c) Male Fern
 - d) Podophyllum

Essay Question (20 marks)

5. Consider the following herbs used in aromatherapy and answer question (a) and (b).
Coriander, Fennel, Caraway, Peppermint, Lemon peel, Bitter orange peel, Sweet orange peel, Comphor, clove, saffron, spearmint, Nutmeg, Eucalyptus, Sandalwood.
- a) Describe three methods used to extract oils from the herbs. (10 marks)
- b) With justification, recommend five herbs that may be used against Corona viruses. (10 marks)

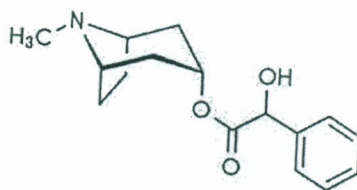
Section B: Glycosides

1. Describe three structural components of a glycoside. (3 marks)
2. Explain the terms cyanogenesis and phytoalexins as used in pharmacognocny. (4 marks)
3. Using appropriate chemical structure, describe the pharmacological and structural differences between cardenolides and bufadienolides. (4 marks)
4. Regarding saponins
- a) Explain two methods you can use to test their presence in a crude plant sample. (4 marks)
- b) Describe two types and for each give a botanical source. (4 marks)
5. Describe three tannin aglycones and for each give a botanical source. (3 marks)
6. Discuss the chemistry, use and biological source for each of the following glycosidal drugs.
- a) Aloes (5 marks)
- b) Digitalis (5 marks)
7. Discuss how you can reduce the amount of cyanogens in cassava used as human food. (8 marks)

Section C: Alkaloids

1. Describe five physicochemical properties alkaloids. (5 marks)
2. Describe two tests for alkaloids. (4 marks)
3. State the natural source, chemical class and the pharmacological importance of the alkaloid Senecionine. (6 marks)

4. Use figure I to answer question a-d



- a) Name the alkaloid represented in figure I (2 marks)
- b) Identify two plant sources of the alkaloid. (2 marks)
- c) Describe one test that can be used to identify the specific type of alkaloid that you named. (2 marks)
- d) Describe how the structure of this alkaloid is related to its pharmacological activity. (4 marks)
5. Regarding vinca alkaloid:
- a) State their plant source. (1 mark)
- b) Name the chemical class to which they belong. (1 mark)
- c) Describe with examples current pharmacological their applications. (4 marks)
6. Cinchona alkaloids are of both pharmacognostic and clinical importance. Substantiate this statement giving examples, natural sources, traditional uses and current pharmacological applications. (10 marks)