



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF PURE & APPLIED SCIENCES
2021_2 EXAMINATION

COURSE TITLE: NATURAL PRODUCTS CHEMISTRY COURSE CODE: CHM 318
TIME ALLOWED: 2 Hours CREDIT: 2 Units
INSTRUCTION: Answer Question ONE (1) and any other Three (3) Questions

QUESTION 1

- a). Starting from IPP and DMAPP show the synthesis of lanostreol **(8 marks)**
- b). State the main synthetic steps for the production of pyrrolizidine-derived alkaloids in plants **(4 marks)**
- c). Showcase the concept pseudalkaloids **(3 marks)**
- d). Draw the structures of
- (i). Lanosterol **(2 marks)**
- (ii). Cycloartenol **(2 marks)**
- (iii). Cyclobuxine **(2 marks)**
- e). Draw the structures of any two(2) important sesquiterpenes **(4 marks)**

QUESTION 2

- a). Showcase the concept tropane derived alkaloids **(5 marks)**
- b). State the main synthetic steps for the production of muscarin alkaloids **(5 marks)**
- c). Copy and complete the following table **(5 marks)**

Alkaloid	Effect
Tubocurarine	
Colchicine	
Reserpine	
Cocaine	

QUESTION 3

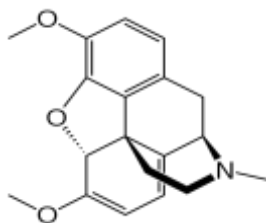
- a). Present an essay on steroids (6 marks)
- b). Explain how you can extract alkaloids from plant material (5 marks)
- c). Describe the metabolism of steroids (4 marks)

QUESTION 4

- a). Draw the structures of:
- (i). Cholic acid (3 marks)
- (ii). Medrogestrone (3 marks)
- (iii). Cholesterol (3 marks)
- b). Write brief note on the:
- (i). Properties of alkaloids (3 marks)
- (ii). Distribution of alkaloids (3 marks)

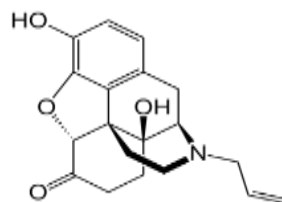
QUESTION 5

- a). Write the historical development of alkaloids (6 marks)
- b). Name the structures of:



(i)

(2.5 marks)



(ii).

(2.5 marks)

- c). Why do you think alkaloids are used as insecticide? (4 marks)