



NATIONAL OPEN UNIVERSITY OF NIGERIA
Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja
Faculty of Science

JULY 2017 Examination

COURSE TITLE: Natural Product Chemistry I

COURSE CODE: CHM 318

COURSE UNIT: 2 Units

INSTRUCTION: Answer Question ONE and any other THREE Questions

TIME: 2 Hours

1ai) Where methyl groups are moved or removed, or oxygen atoms added to terpenoids, they are described as _____? **(2 marks)**

1aii) Show the structure of an isoprene. **(2 marks)**

1aiii) Using structure, describe how geranyl pyrophosphate is formed. **(6 marks)**

1b) Complete the below table;

Class	Example	No of carbon atoms
Cholestanes		
		24
	progesterone	
Androstanes		
		18

(5 marks)

1c) Draw the basic skeleton of a steroid. **(5 marks)**

1d) Explain the oxidation of steroids and how the product can be regulated. **(5 marks)**

2a) Farnesol and nerolidol are very common and are isolated from essential oils of various sources. Distinguish between them with the aid of their structure. **(4 marks)**

2b) Write short notes on Farnesol and nerolidol. **(11 marks)**

3a) List three examples of sesterpenes. **(3 marks)**

3b) Draw the structure of one of the sesterpenes listed in (3a) above. **(6 marks)**

3c) Discuss the synthesis of Schiff bases. **(6 marks)**

4a) Explain the metabolic pathways of terpenoids formation. **(5 marks)**

4b) List five alkanols and their usefulness in Medicine. **(5 marks)**

4c) Discuss the major groups of Alkaloids. **(5 marks)**

5a) Indicate the metabolic pathways for the below organisms.

Organisms	Metabolic pathways
Bacteria	
Plants	
Fungi	
Green algae	
Animals	

(5 marks)

5b) Show the schematic diagram of the production of lanosterol from dimethylallyl pyrophosphate

(DMAPP). **(10 marks)**