

**NATIONAL OPEN UNVERSITY OF NIGERIA**

PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA

**FACULTY OF SCIENCES**

**DEPARTMENT OF PURE & APPLIED SCIENCES**

**APRIL/MAY, 2019 EXAMINATIONS**

**CHM 318 –NATURAL PRODUCT CHEMISTRY I (2 UNITS)**

**INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER 3 QUESTIONS.**

**Time allowed 2 Hours**

**QUESTION 1** (a). i). Write short note on the following:

* Monoterpenes, *(3 marks)*
* Sesquiterpenes *(4 marks)*
* Diterpenes *(3 marks)*

(b). Define Steroid. *(5 marks)*

(c). What are the properties of Alkaloids? *(10 marks)*

**QUESTION 2.** (a).Give three examples each for monocyclic monoterpenes and bicyclic monoterpenes. *(6 marks)*

(b). What are the sources and uses of the following terpenes?  *(9 marks)*

* Farnesol, Farnesene, Nerolidol and Cadalene

**QUESTION 3**. (a) (i). Discuss the general structure of steroid. *(3 marks)*

(ii). Discuss the skeleton of steroid (gonane) (3 marks)

(b). (i). Briefly differentiate between the two types of corticosteroids. *(3 marks)*

(ii). What are the functions of anabolic steroid and cholesterol.  *(2 marks)*

(c). (i). What is steroidogenesis? *(1 mark)*

(ii). Write short note on degradation and elimination processes of steroids*. (3 marks)*

**QUESTION 4** (a). Discuss the first contribution made by scientist to alkaloid chemistry, and how did Albert Ladenburg achieved the first complete synthesis of an alkaloid ?

*(5 marks)*

(b). How can alkaloids be extracted? *(5 marks)*

(c). List five methods for synthesis of alkaloids. *(5 marks)*

**QUESTION 5**. (a). (i).What are the biological roles of alkaloids? *(2 marks)*

(ii). Give the medicinal application of the following alkaloids: *(5 marks)*

vinblastine, codeine, cocaine, colchicine, reserpine, quinine, quinidine, morphine, tubocurarine and emetine.

(iii). Give five examples of pseudoalkaloids. *(2 ½ marks)*

(b). Define alkaloid. *(3 marks)*

(c). Describe the psychoactive drug use of alkaloids. *(2 ½ marks)*