



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI – ABUJA  
**FACULTY OF SCIENCES**  
**DEPARTMENT OF PURE & APPLIED SCIENCES**  
**2020\_2 EXAMINATION**

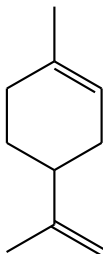
**COURSE TITLE: NATURAL PRODUCTS CHEMISTRY      COURSE CODE: CHM 318**

**TIME ALLOWED: 2 Hours**

**CREDIT: 2 Units**

**INSTRUCTION: Answer Question ONE (1) and any other Three (3) Questions**

1. a. Draw the structure of the repeating unit of terpenoids and give its IUPAC name [4 marks]
  - b. i. List two metabolic pathways for creating terpenoids [3 marks]
  - ii. Classify alkaloids based on origin of nitrogen in their metabolic synthesis [5 marks]
  - c. i. Write a brief note on series reactions of steroids from production to degradation [7 marks]
  - ii. Give the structures and name of two structural isomers of the structure below; [6 marks]



2. a. Briefly explain the purpose of each of the following in alkaloids extraction
  - i. Using basic solution to extract plant material and treating the extract with organic solvent [6 marks]
  - ii. Using weak acidic solution to extract plant material and addition of base to the resulting extract. [6 marks]
- b. Outline three physical properties of alkaloids [3 marks]
3. a. i. Outline three atypical properties of alkaloids [6 marks]
- ii. Write brief note on extraction of terpenes from plant [6 marks]
- b. Abscisic acid is a cyclic sesquiterpenes, what role does it play in plant? [3 marks]
4. Classify terpenes based on isoprene units [15 marks]
5. a. What are alkaloids? [2 marks]
- b. List five mechanistic methods of dimerisation of alkaloids [10 marks]
- c. What are the three sub-classes of monoterpenes? [3 marks]