



NATIONAL OPEN UNIVERSITY OF NIGERIA
UNIVERSITY VILLAGE, PLOT 91 CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESS WAY, JABI - ABUJA.
FACULTY OF SCIENCES
DEPARTMENT OF PURE AND APPLIED SCIENCE
SECOND SEMESTER EXAMINATION, 2021_2 45678

COURSE CODE: CHM422
COURSE TITLE: NATURAL PRODUCTS CHEMISTRY II
TIME: 2 HOURS
INSTRUCTION: Answer question one and any other three questions.

QUESTION ONE

- 1a. List three general methods of extraction of natural products 3 marks
- 1b. Explain how you would systematically (step by step) isolate terpene from lemon grass 6 marks
- 1ci. Write briefly on Soxhlet extractor 5 marks
- 1cii. Outline four different types of chromatographic techniques used in isolation of natural product 4 marks
- 1d. Compare and contrast between terpenes and alkaloids 3 marks

QUESTION TWO

2. Explain the following;
- i. Metabolic pathways [3 marks]
 - ii. Enzymes [3 marks]
 - iii. Antibiotics [3 marks]
 - iv. Fractionation [3 marks]
 - v. Sesquiterpenoid [3 marks]

QUESTION THREE

- 3ai. State Isoprene Rule. 2 marks
- 3a.ii. Draw the structure of isoprene 2marks
- 3bi. Which of the alkaloid is responsible for reflex action in human? 2 marks
- 3bii. Give three examples of Acyclic terpenes 3 marks
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- 3c. Explain briefly morphine 6 marks

QUESTION FOUR

- 4a. Explain the chemistry or reason underlying the methods of isolating natural product 8 marks
- 4b. What are phytosterols? 4 marks
- 4c. List the three stages involved in conversion of terpenes to steroids 3 marks

QUESTION FIVE

5a Differentiate between the following pairs;

- i. Carotene and Carotenoids 5 marks
- ii. Terpene and Terpenoids 5 marks
- iii. Sterol and Steroids 5 marks