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KIBABII UNIVERSITY

2017/2018 ACADEMIC YEAR
FOURTH YEAR FIRST SEMESTER
SPECIAL/SUPPLEMENTARY EXAMINATIONS
FOR THE DEGREE OF BACHELOR OF BACHELOR OF SCIENCE

COURSE CODE: SCH 431

COURSE TITLE: CHEMISTRY OF NATURAL PRODUCTS

DATE: 3/8/2018

TIME: 2-4PM

INSTRUCTIONS TO CANDIDATES

- (i) Answer all questions**
- (ii) Do not write on this question paper**
- (iii) Show your working clearly**

QUESTION ONE (28 MARKS)

(a) Define the following terms:

- (i) Normonoterpene
- (ii) Secondary metabolites
- (iii) Transamination
- (iv) Sesterterpenes

(4 Marks)

(b) State two classes of compounds formed from each of the following biosynthetic pathways:

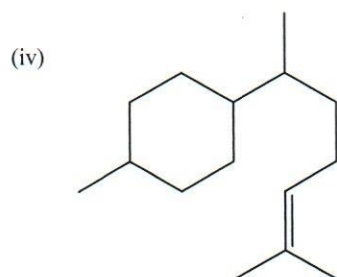
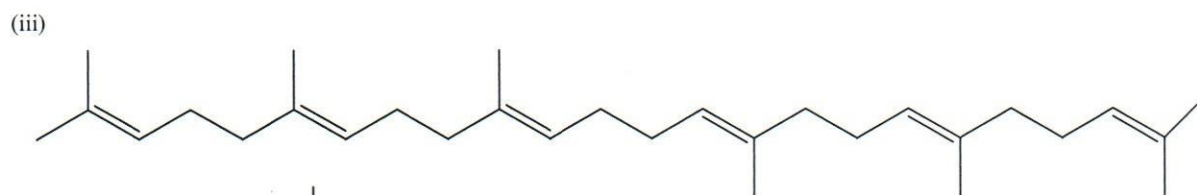
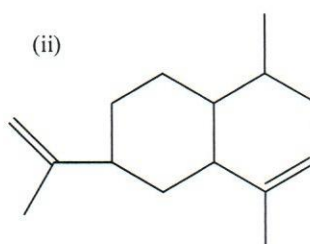
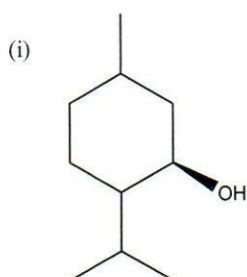
- (i) Acetate pathway
- (ii) Mevalonate pathway
- (iii) Shikimate pathway

(6 Marks)

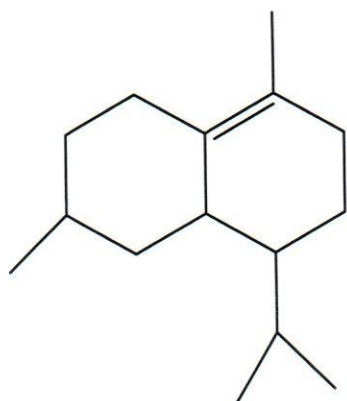
(c) Explain why DMAPP is an electrophile while IPP is a nucleophile.

(4 Marks)

(d) Majority of terpenoid natural products contain a multiple of 5C-atoms. Show the isoprene units in each the following terpenoids:

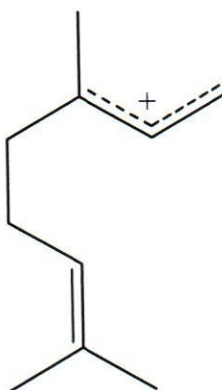


(v)



(10 Marks)

(e) Give the two stabilized allylic cations of a geranyl cation below:



(4 Marks)

QUESTION 2 (25 MARKS)

(a) State the three major classes of amino acid from which alkaloids are derived.

(3 Marks)

(b) Illustrate using a flow chart the procedures involved in extracting alkaloids

(6 Marks)

(c) Give three functions of prostaglandins.

(3 Marks)

(d) Name any five physical methods applied to elucidate the structure of alkaloids

(5 Marks)

(e) Describe four methods of nomenclature of alkaloids **(8 Marks)**

QUESTION 3 (17 MARKS)

(a) State four methods used to investigate secondary metabolism **(4 Marks)**

(b) Name any three major phenolic classes of compound **(4 Marks)**

(c) Name four sources of natural products **(2 Marks)**

(d) i) Define bioassay **(2 Marks)**

ii) Explain the classifications of bioassay methods **(6 Marks)**