

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF**

BIOC 312: PHYTOCHEMISTRY

STREAMS:

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 24/3/2021

11.30 AM – 1.30 PM

INSTRUCTIONS:

- Answer question ONE (Compulsory) and any other TWO
- Do not write anything in the question paper.

QUESTION ONE (30 MARKS)

- a) (i). Differentiate between primary and secondary metabolites, giving an example of each. [4 Marks]
- ii). Define a phytochemical compound. [1 Mark]
- b) Compare and contrast the structure of flavonol and flavone. [5 Marks]
- c) Describe the biochemical properties and importance of sulphur-containing secondary metabolites. [5 Marks]
- d) Describe the pharmacological role of curcumin obtained from turmeric. [5 Marks]
- e) Describe the pharmaceutical importance of Vinblastine and vincristine. [5 Marks]
- f) Illustrate the structure of psoralen and give its significance. [5 Marks]

QUESTION TWO (20 MARKS)

- a) With the aid of suitable structural illustrations, describe the acetate/mevalonate pathway for the synthesis of geranyl diphosphate. [10 Marks]
- b) Explain in details the different classes of alkaloids. [10 Marks]

QUESTION THREE (20 MARKS)

- a) Giving the health benefits associated with consumption of caffeine, describe its biosynthetic pathway. [10 Marks]
- b) Using suitable biochemical structures, illustrate the biosynthetic pathway for anthocyanidin. [10 Marks]

QUESTION FOUR (20 MARKS)

- a) Explain any ten (10) pharmaceutical and industrial application of terpenes. [10 Marks]
- b) Describe the mevalonate independent pathway for the biosynthesis of isoprenoids.[10 Marks]

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