

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE (GENERAL)

BOTA 473: PLANT BIOCHEMISTRY

STREAMS: BOTA Y4S1

TIME: 2 HOURS

DAY/DATE: FRIDAY 8/12/2017

11.30 A.M - 1.30 A.M.

INSTRUCTIONS:

- Answer ALL the questions in Section A and TWO in Section B

SECTION A: [30 MARKS] - ANSWER ALL THE QUESTIONS

1. Identify the carbohydrates shown below and state its importance. [3 Marks]

2. Outline the classification of plant lipids. [3 Marks]
3. List three differences between saturated and unsaturated fatty acids. [3 Marks]
4. Illustrate the cyclization of D-fructose to produce α D-fructofuranose [3 Marks]
5. Distinguish between the properties of amylase and amylopectin. [3 Marks]
6. Outline the international system of classifying enzymes. [3 Marks]
7. State three functions of plant secondary metabolites. [3 Marks]
8. State three processes that result in the formation of plant alkaloids [3 Marks]
9. Name three plant phenolics and state their functions. [3 Marks]
10. Outline the chemical flow showing CO₂ fixation in C₃ photosynthesis [3 Marks]

SECTION B [20 MARKS]

11. Discuss the different mechanisms of nitrogen fixation. [20 Marks]
12. Describe the factors that affect enzyme controlled reactions. [20 Marks]
13. Discuss the process of photosynthesis in C₃ and C₄ plants. [20 Marks]