



**JARAMOGI OGINGA ODONGA UNIVERSITY OF SCIENCE AND  
TECHNOLOGY**

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**SECOND YEAR FIRST SEMESTER UNIVERSITY EXAMINATION**

**2016/2017 ACADEMIC YEAR**

**REGULAR**

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**COURSE CODE:** AHT 3212

**COURSE TITLE:** Plant Biochemistry

**EXAM VENUE:**

**STREAMS:** Bsc. Horticulture

**DATE:**

**EXAM SESSION:**

**TIME: 2 HOURS**

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**Instructions:**

- 1. Answer ALL questions in section A and ANY other 2 Questions in section B.**
- 2. Candidates are advised not to write on question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**SECTION A [30 MARKS]**

**Answer ALL questions from this Section.**

1. Briefly describe the following:
  - (i) Anabolism (2 marks)
  - (ii) Catabolism (2 marks)
  
2. With specific examples, describe the following types of isomers
  - (i) Epimers (2 marks)
  - (ii) Anomers (2 marks)
  
3. (i) What is a Zwitterion? (4 marks)  
(ii) Using examples of any 2 amino acids, describe the formation of a dipeptide (4 marks)
  
4. Describe the role of plant secondary metabolites in the defense of plants against pathogens (5 marks)
  
5. Explain the following as used in enzymology
  - (i) Allosteric inhibition (2 marks)
  - (ii) Michaelis constant ( $K_m$ ) (2 marks)
  
6. (i) Illustrate the structure of a triglyceride (2 marks)  
(ii) State the role of triacylglycerols in plants (3 marks)

**SECTION B [40 MARKS]**

**Answer ANY TWO questions from this Section.**

7. Describe protein biosynthesis in plants (20 marks)
  
8. Describe the structure and functions of co-enzymes in plants (20 marks)
  
9. Describe the mechanism of nitrogen fixation in root nodules of leguminous plants (20 marks)