



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR**  
**OF SCIENCE IN HORTICULTURE, BACHELOR SCIENCE IN AGRIBUSINESS**  
**MANAGEMENT, BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND**  
**EXTENSION AND BACHELOR OF SCIENCE IN FOOD SECURITY**

**2013/2014 ACADEMIC YEAR**

**APT 3125: PRINCIPLES OF CROP PRODUCTION**

**Instructions:**

1. This paper consists of **TWO** sections, **A** and **B**.
2. Answer **ALL** questions from section **A** and any **TWO** from section **B**.
3. Write all answers in the booklet provided.

**SECTION A** [30 MARKS]

**Answer ALL questions from this section**

1. (a) Outline factors considered when determining plant spacing. [5 marks]  
(b) A maize farmer wishes to establish a crop population of 50,000 plants per hectare.  
If the intra – row spacing is 10 cm, what inter – row spacing should the farmer use?  
Show your work. [5marks]
2. (a) State the factors that affect choice of crops in a rotation. [5 marks]  
(b) Using photosynthesis as an example, explain biomass energy transfer systems in plants. [5 marks]
3. (a) Explain the benefits of mulching in crop production. [5 marks]  
(b) What is the role of Nitrogen, Phosphorus and Potassium nutrients in plants? [5 marks]

**SECTION B** [40 MARKS]

**Answer any TWO questions from this section**

4. Crop rotation is a system of growing different kinds of crops in recurrent succession on the same piece of land. Using the sequence: Cabbage----bean----Onion----GrassSod, discuss the importance and benefits of rotation. [20marks]
5. (a) Explain the concepts:
  - i) Crop production. [5 marks]
  - ii) Integrated Soil Fertility Management (ISFM). [5 marks]  
(b) Discuss the following with regards to crop production:
  - i) Compost manure. [5 marks]
  - ii) Green manure. [5 marks]
6. (a) Explain the cultural and chemical control measures in crop protection. [14marks]  
(b) Describe the damage caused by weeds in crop production. [6 marks]