

Uganda Martyrs University
Faculty of Agriculture
B. Agricultural Economics and Agribusiness Management
Year I Semester I Final Assessment: 2018/2019

Course Unit: IPA 1104: Introduction to Principles of Agronomy

Time: 09:30 am – 12:30 pm

Date: Wednesday 5th December, 2018

Instructions:

- i. Attempt BOTH questions in section A plus any TWO questions from section B.
 - ii. Do not write anything on a question paper
 - iii. Time: Three hours
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SECTION A: Attempt both questions

Question 1

- (a) A field of sorghum has been established at Kalagala Farm at a spacing of 75 cm x 10 cm. Calculate the plant population per hectare (plants/ha). [14 marks]
- (b) Referring to 1(a) above, how many plants would a 1-acre field of sorghum have? [6 marks]
- (c) Briefly discuss the importance of ensuring optimum crop stand. [5 marks]

Question 2

- (a) What do you understand by the term 'land equivalent ratio'? [5 marks]
- (b) Ms. Akol is a farmer in Lira district having 3 acres of arable land. In 2018A season, she planted acre with an intercrop of maize and beans and obtained 1,850 kg of maize and 350 kg of beans. The other 2 acres were each planted with pure stands of maize and beans. The sole crop yields were 2,100 kg and 580 kg of maize and beans, respectively. Assuming that you are the Agricultural Officer for Lira district, and you have been approached by Ms. Akol for advice on whether or not to extend the intercropping to all the three acres which she owns, what would you tell her? Assumptions used, if any, should be stated. [20 marks]

SECTION B: Attempt any TWO questions from this Section

Question 3

- (a) Distinguish between crop rotation and intercropping. [5 marks]
- (b) Beside increased crop yields and profit, discuss 4 benefits of crop rotation to a farmer. [20 marks]

Question 4

- (a) What is the difference between manures and fertilizers? [6 marks]
- (b) With examples, describe the different types of manures and fertilizers. [19 marks]

Question 5

- (a) Using examples, distinguish between essential and non-essential nutrient elements. [10 marks]
- (b) How are micro-nutrient elements different from macro-nutrient elements? [9 marks]
- (c) What are beneficial elements for plants? Give examples. [6 marks]

Question 6

- (a) What is nutrient removal in relation to causes of soil infertility? [5 marks]
- (b) Other than nutrient removal, discuss 5 ways in which soil may become infertile. [20 marks]

Question 7

- (a) Distinguish between growth and development of a crop plant. [5 marks]
- (b) Briefly discuss how the following factors can influence the growth and development of crop plants [4 marks each]
 - (i) Temperature
 - (ii) Soil moisture
 - (iii) Radiant energy
 - (iv) Composition of the atmosphere (air)
 - (v) Soil pH

Question 8

As an Agronomist, make a detailed account of and for the different stages of growth and development of a maize plant [25 marks]

'Making a difference'