



Strathmore
UNIVERSITY

STRATHMORE BUSINESS SCHOOL

MASTER OF MANAGEMENT IN AGRIBUSINESS

END OF SEMESTER EXAMINATION

MMA 8103: FARMING SYSTEMS

Date: Friday 1st December 2023

Time: 3 Hours

Instructions

- This paper consists of three sections. Read **ALL** instruction for each section carefully before attempting any question.

Section I (20 marks): Answer **ALL** questions in this section

Question 1 (4 marks)

- (i) Which are the five main factors of soil formation? (ii) How do we distinguish between different soils?

Question 2 (4 Marks)

- (i) List four ways by which plants take up nutrients from the soil and the atmosphere. (ii) Which among the four is the most efficient?

Question 3 (6 Marks)

- (i) List the five known causes of climate change. (ii) Which are the two notorious gasses that predominantly contribute to global warming?

Question 4 (6 Marks)

Irrigation is an important element for increasing crop productivity.

- (i) List the five methods of irrigation that are currently in use? (ii) Which of the methods provide the best option for small-scale farmers?

Section II (40 Marks): Attempt any **FOUR** questions

Question 5 (10 Marks)

- (a) Organic farming is progressively becoming very attractive to most consumers of agricultural produce. (i) What is your understanding of the term organic farming and (ii) which are the four principles of organic agriculture?

- (b) Given that organic nutrients are mostly in an unmineralized form that cannot be taken up by plants, what is needed for the breakdown of organic matter that transform its nutrients into a bioavailable “mineralized” state?

Question 6 (10 Marks)

In your own words and understanding, what do you understand of the term “green technologies” and how it should they be applied to the African Farming systems?

Question 7 (10 Marks)

- (i) List the six types of livestock farming and their individual types of nutrient provision,
- (ii) Apart from food, which other economic and environmental benefits do human draw from livestock farming?

Question 8 (10 Marks)

- (i) What is the meaning of animal breeding and how does it benefit livestock production and productivity?
- (ii) From your understanding, which are the reasons for lack of benefits from livestock keeping in Africa in general and more so from smallholder farmers?

Question 9 (10 Marks)

- (i) Which are the four types of livestock fodder that you know of?
- (ii) What do you feed cows, goats, sheep and pigs for quicker benefits?

Question 10 (10 Marks)

Irrigation is a solution that provides more efficient water-use efficiency. Which are the important parameters an irrigation engineer needs to consider in the process of designing an efficient irrigation system?

Section III (40 marks):

Answer only ONE of the two questions provided

Question 11 (40 Marks)

- a. Are smallholder farmers in Africa able to address food shortages on the continent- if yes discuss why and if no, discuss why not? **(10 Marks)**
- b. What do we mean by water intense systems and which one are more suited to intensive production in the urban areas? **(10 marks)**

- c. List three methods of carbon dioxide removal from the atmosphere describing the advantages of each compared to the others. **(10 marks)**
- d. What mitigation strategies would be sensible for Africa to adopt given a weak carbon market and lackadaisical commitments from the most polluting countries at the COP26 summit? What incentives would provide farmers with an impetus toward such mitigation? **(10 marks)**

Question 12 (40 marks)

If you are given 50 hectares of land in a semi-arid environment and asked to make it productive and earn you millions of shillings, what would you do to ensure that the land becomes productive and earn you the required amounts of money? Describe the challenges, the opportunities as well as solutions.